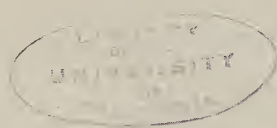


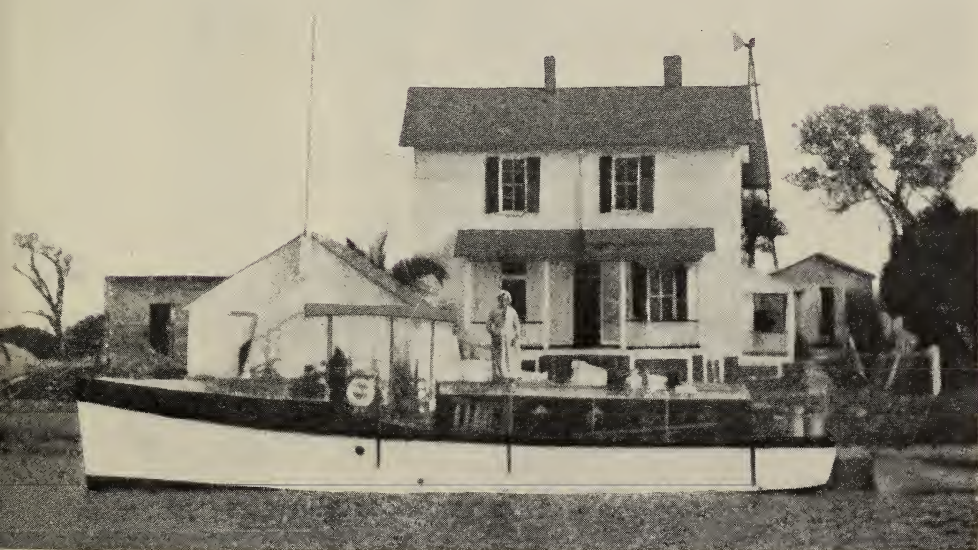
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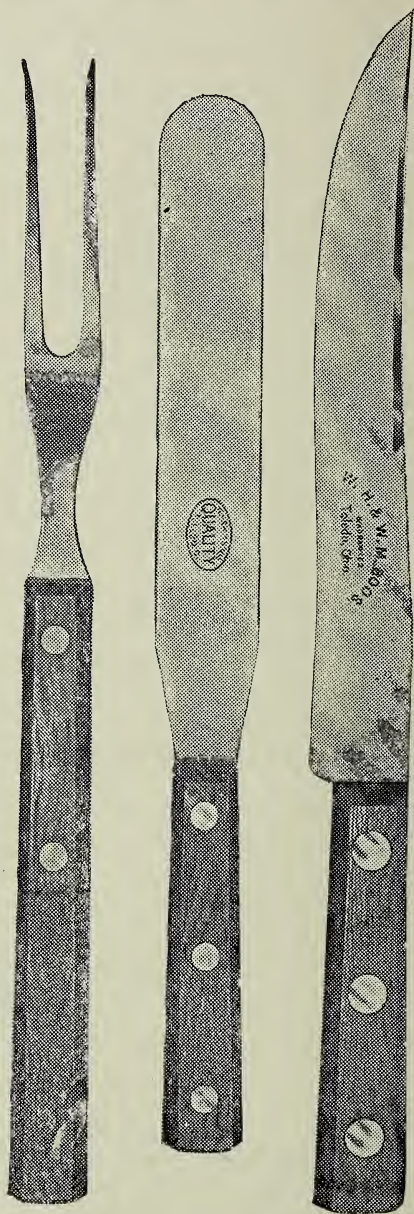
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Published by The A. I. Root Co., Medina, Ohio

A. I. ROOT, Editor Home Department
H. H. ROOT, Managing Editor

E. R. ROOT, Editor

J. T. CALVERT, Business Manager

A. L. BOYDEN, Advertising Manager.

Entered at the Postoffice, Medina, Ohio, as second-class matter

VOL. XLIII.

MARCH 15, 1915

NO. 6

EDITORIALS

Edition of Iowa Report Exhausted

MR. PELLETT has just advised us that the third annual report of the Iowa bee-inspector has met with such a large demand that the supply is now practically exhausted, although it has been out only about six weeks. A few copies only are left for use in libraries. The demand continues large for all of the publications. Some of the bulletins are already nearly gone, so that revised editions will be necessary.

One More Ghost Laid

ANTONIO R. MALAQUINA, of Salto, Uruguay, reports that he has won his suit with proprietors of vineyards at Salto, who were seeking damages on the ground that his bees puncture and destroy the grapes. A year ago several vineyard owners located near his apiary notified him to move his bees, on the charge that they were a nuisance. When he failed to do so they sued him, but he reports that he was able to win the suit entirely without counsel.

Señor Malaquina wrote to GLEANINGS for a statement of evidence and precedents which he might use in his case. Through some error in translation the editor of GLEANINGS was made to say that the bees do ten times as much harm as good. This naturally surprised the beekeeper, but he was able to win his suit notwithstanding.

More about the Swamp Bees

GEORGE H. REA just returned from the Dismal Swamp apiaries and reports that the bees are gathering a little honey and pollen, and brood-rearing is progressing in a very satisfactory manner. While a blizzard was raging in the North the sun was shining there every day (first week in March), and the bees worked right along. The temperature during the daytime was around 60 to 70 degrees. While there was frost one or two nights, it was not cold enough to give brood-rearing a setback. The residents of that section do not expect

many more frosts. The fact that thousands of bushels of early potatoes and acres and acres of garden are in process of planting is evidence of their faith in the advent of continued warm weather.

Oklahoma Foul-brood Bill Passes both House and Senate

N. FRED GARDINER, of Geary, Okla., has just informed us that the new foul-brood bill has passed both branches of the legislature by the following vote: House, 70 to 10; Senate, 29 to 5. The bill is now in the hands of the Governor, and his signature is expected.

Oklahoma has long needed a good foul-brood law. Two years ago a similar bill was introduced into the legislature but failed to pass. It is to be hoped that the beekeepers who have worked so hard to secure such a law may now be rewarded.

How the Bees are Wintering

It is still too early to say definitely how bees in northern localities have wintered. Reports so far are conflicting, although it is probable that there is considerable loss in localities where the bees last fall gathered considerable aster honey, especially where there was a long period of three months or more when the bees could not fly. There are many reports of excessive spotting of the hives.

On account of the fact that in most localities snow covered the ground during the coldest part of the winter, clover looks very promising.

Our Cover Picture

THE cover design gives a view of the Jupiter dock and the Government buildings in the background where the wireless messages are received, as referred to by E. R. R. in his article in this issue, page 225. Our cruiser is shown in the foreground, moored

to the dock. It was at this point where Harry DuBois met us, and from which our party went up the Loxahatchie River to inspect his beeyards.

Perhaps some of our readers will wish to know what that cruiser cost. Somewhere about \$5000. It is constructed to stand heavy seas; is furnished with full equipments in the cabins for sleeping, eating, and cooking. Cruising is the most enjoyable way of seeing the country in Florida that I know of. In this particular case we did not buy the cruiser, but chartered it for a couple of weeks.

The Parable of the Barren Apple-tree

WITH all that has been said at fruit-growers' conventions and written in fruit-growers' magazines, it is hoped that the horticulturists this year will recognize more fully the indissoluble connection between their interests and those of the beekeepers. Since the winter has not been so severe as to kill off great numbers of colonies, the outlook is favorable for the pollination of fruit-blossoms. From that, it follows a good fruit year is due.

In this connection a specific example reported by Dr. B. N. Gates, at the Iowa State Beekeepers' convention last November, is of exceedingly timely interest: "In one of the western states there are two comparable apple orchards of about equal acreage, of similar location and age, each in a pocket in the foothills of an admirable fruit land, both well drained, and protected from frost. One orchard bore heavily for successive years. On the other there was no crop, although the trees blossomed heavily each spring. In despair of financial ruin, the owner called the assistance of the State Experiment Station. A pomologist and entomologist was sent to examine critically all of the conditions at each of the orchards. He was about to return without solving the problem of failure, when the question arose, 'Were there ever any bees maintained in the orchard which had fruited?' It was asserted, however, that neither orchard had bees. However, the problem was not given up, and the ground was again gone over. As the experiment station man was about to leave without finding any apparent reason for failure he chanced to see a stream of bees coming in one of the orchards from a swale under a pile of underbrush. Further investigation revealed a hollow log sunken in the soil sheltering a large colony of bees. It is needless to say in which orchard the log was. Immediately

bees were secured for the failing orchard. The owner then netted \$3800 on his crop."

Have we Really been Testing Queens?

IN *Science* for February 5, Wilmon Newell, state entomologist for Texas, who has been studying inheritance in the honey-bee, has announced a few interesting observations which have been brought out by four years of research. At an isolated station along the Gulf Coast, crosses between pure Carniolans and pure Italian stock are being observed.

Mr. Newell finds that the workers of typical Italian color, produced by an Italian queen, are not evidence that she has been purely mated, although this has long been the assumption of queen-breeders. Italian queens mated with Carniolan drones produce workers and queens often indistinguishable from Italians so far as color is concerned. When Carniolan queens are mated to Italian drones the yellow color is also predominant. He has not experimented with blacks.

Offspring of the first of these crosses show a proclivity of the Carniolans for using wax instead of propolis. Bees from the second show it also, but in less degree.

Daughters of these two crosses each produce drones of both races in equal numbers, but produce no hybrid drones. "The actual application of this is that the only test of an Italian queen mated is found in the color of the drones produced by her daughters."

This statement of Mr. Newell's is somewhat tempered by the consideration that when more data are secured on the wide variation in color of drones from purely mated queens, more light will be thrown on several phases of the problem. At best it is rather discouraging to queen-breeders to learn that the only way to discover whether a queen has been properly mated is to examine her grandsons.

Sugar Consumed in the United States

FROM the Bureau of Foreign and Domestic Commerce of the Department of Commerce at Washington we learn that in twenty-five years the sugar consumption of the country has almost trebled, and has increased from 50.44 pounds per capita, in 1889, to 86.85 pounds in 1914. In that period of twenty-five years Cuba has increased its contribution to the domestic market from 1,032,000,000 to 4,927,000,000

pounds, and the non-contiguous territories of Hawaii, Philippines, and Porto Rico have increased their shipments of sugar into continental United States from 511,000,000 to 1,873,000,000 pounds. Europe, the Dutch East Indies, and other foreign countries, on the other hand, have decreased their sales to this country during that same period from 1,219,000,000 pounds to 23.4 million pounds in 1914. The domestic product has grown from 349,000,000 to 1,841,000,000 pounds. Our exports of sugar have increased from 20,000,000 in 1889 to 97,000,000 pounds in the year ended June 30, 1914, and in the three months ended with Oct. 31 there was the enormous export of 230,000,000 pounds; in round numbers, more exactly as follows: August, 38,956,305; September, 52,290,773; October, 138,372,686, or a total of 229,619,764 pounds.

In the fiscal year of 1913 only 44,000,000 pounds was exported. In 1910, 125,000,000 pounds.

The following table shows the leading factors in the sugar consumption of the United States and its relation to the world product in 1894 and 1914.

FACTORS IN SUGAR SUPPLY AND CONSUMPTION.

	Millions of Pounds	
	1894	1914
Domestic product		
Cane sugar	610.8	601.1
Beet sugar	44.7	1,240.0
Total	655.5	1,841.1
Cane sugar from:		
Porto Rico	75.5	641.3
Hawaii	326.6	1,114.7
Philippines	124.1	116.7
Total U. S. islands	526.2	1,872.7
Cuba	2,127.5	4,926.6
Other foreign countries	1,181.2	21.0
Beet sugar from foreign countries:		
Total from foreign countries	510.4	2.4
Sugar exports (including shipments to U. S. islands)	3,819.1	4,950.0
Domestic sugar consumption	64.3	96.8
World's sugar product	4,936.5	8,567.0
Percentage of domestic-sugar consumption supplied by:		
Continental United States	13.3	20.6
U. S. islands	10.7	21.9
Cuba	43.1	57.5
Other foreign countries	32.9	0.2

Another Admonition against Arsenate

Is it too soon to begin this year's series of warnings to ignorant and thoughtless fruitgrowers against spraying during bloom? Doubtless in 1915, just as in every other year, the reckless will add to the untold damage which has been caused by spraying with lead arsenate while the blossoms are yet on the trees, although it is to be hoped that, with all which has been said and written on this subject, some diminution in this inconsiderate carelessness will be noticed.

"Never spray any fruit-tree while in

bloom" is the caution of the Connecticut Experimental Station Bulletin No. 184. "It kills your best friends, the honeybees, which pollinate the flowers and help to increase the yield of fruit. The spray will also injure the delicate floral organs, so that fruit will not set." In giving directions for the control of the canker worms, bud-moths, tent-caterpillars, and brown-tail moths, which feed upon the unfolding leaves, the bulletin says to spray *before the blossom-cup opens*, though not until the surface of the leaves has expanded sufficiently to hold the poison.

Fruitgrowers who do not understand the relation between bees and fruitgrowing (and, unfortunately, there are still such men) will be persuaded to stop this practice probably only when they realize that filling the blossom-cup with poison is not only not necessary but positively an injury to the delicate organs of the flower, and a handicap to the future growth of the fruit if it manages to survive. Best results will be secured by pounding this truth home quite as forcibly as the fact that bees are necessary for perfect pollination.

The Pennsylvania Meeting

THE Pennsylvania beekeepers met in their eleventh annual convention in the Senate Caucus Room of the State Capitol at Harrisburg, on Tuesday evening, February 23, holding also two sessions on Wednesday, the 24th. This proved one of the most enthusiastic and probably most important meeting of the association. While the attendance was not as large as at some former meetings, yet the keen interest shown in bringing Pennsylvania to the front was remarkable.

Reports by members and inspectors showed that last season was not up to the average, and that foul brood was extremely bad.

It was brought out that the Pennsylvania association has the second largest membership in the United States, and is second only to New York in honey production. It is also the second largest apple-producing state in the Union. The crop for 1914 was 23,100,000 bushels. Because of their importance to the fruitgrower in the pollination of fruit bloom it is of prime importance to save the bees from the ravages of foul brood.

With two or three exceptions the program was carried out as advertised. The various papers and talks aroused lively discussion and developed some important steps.

One member introduced a resolution boosting Prof. H. A. Surface for State Secretary of Agriculture, which was unanimously adopted, signed by every member present, and later submitted to the Governor by a committee. The Governor received the committee kindly, and showed much interest in the needs of the industry. After careful consideration he did the unusual and unexpected for one in his position by suggesting to the committee that an independent bill be introduced asking for an appropriation of \$50,000 for bee inspection. This suggestion was acted upon, and the bill is now in the hands of the Agricultural Committee of the House. If passed it will supersede the item for that purpose now in the Agricultural Budget. The bill has the endorsement of Secretary Critchfield and the hearty support of several members of the House and Senate who were interviewed.

If the Pennsylvania beekeepers and fruit-growers will write their representatives at once, asking them to support the bill, it will stand good chances of passing. With such an appropriation the state can be systematically covered by inspectors, and all bee-diseases brought under control. The beekeepers themselves, moreover, can be educated to better methods. It means millions of dollars to the citizens of Pennsylvania.

We hope to have a picture of the convention in the next issue.

Bees and Orange Culture

A NUMBER of monographs have been published of late upon the relation of bees to horticulture. These articles and pamphlets upon the general subject of the service of bees in pollinizing fruit-blossoms have been increasing the interest of fruit-men in the honeybees and the realization of both horticulturists and apiarists that nature has indissolubly linked together their interests. It has remained for E. G. Baldwin, A. M., of DeLand, Fla., to discuss the bearing of this new science upon citrus fruits in an article entitled "Honeybees in Orange-groves," written for the *DeLand News*. Professor Baldwin, a member of the faculty of the John B. Stetson University, is a practical beekeeper as well as a close student of botany and entomology.

Everybody knows, who has had even the most elementary instruction in botany, that fertilization of a blossom takes place when pollen from the stamen reaches the embryonic seed through the pistil. In some flowers the process by which this takes place is quite as simple as the foregoing statement

of the principle; but in far the greater number fertilization is a complex process, requiring the services of one of two outside agents—either the wind or insects.

In those plants such as some varieties of the strawberry, in which stamens and pistils are borne on different plants, the pollen must be carried a considerable distance in order that fertilization and development of the fruit may be assured. In Indian corn the pollen from the tassel must fall upon each strand of silk for every grain to be developed. Maize is best produced in countries where the sweep of the wind is almost uninterrupted.

In the orange-blossom the pollen must be carried from the stamen up to the pistil. To rely upon the wind alone for this service would be about as uncertain as the breezes themselves, so that in places where calms or damp weather are frequent the agency of insects is extremely important in the fertilization of these blossoms.

Here is where the nectar secreted by orange-blossoms is valuable. This thin watery fluid to be found in almost all plants, every beekeeper knows. is the base from which the bees make their honey, but beyond this it has no other intrinsic use. Nectar is simply a bait to lure the bees, get them to brush against the stamens and the pistils, and thus unconsciously perform the service which the wind only partially accomplishes, but which is so essential to the production of fruit.

Damp weather hinders the work of all the insects but the honey and bumble bees. In Florida bumbles are scarce. Upon the honeybees, then, depends the success of Florida orange culture.

Of the growing popularity of bees among orange-growers, let Professor Baldwin speak directly: "In some parts of Florida, the citrus-growers are recognizing their need of something more dependable than mere chance to fertilize their groves. Formerly the beemen were too few, or had too few bees in proportion to the number of groves, and there was an antipathy to bees on the part of many, because they thought the bees damaged the trees, blossoms, or fruit, by their coming and going to and fro. As a result, heretofore, beemen have had to pay a rental for the privilege of putting their bees in groves, locating an apiary inside an orange-grove, for instance. But enlightenment is coming. Now the fruit-men actually court the presence of the bees. Notably around Bradentown, the citrus-men actually offer the beemen free rent for beeyard sites, and in many instances even buy bees of their own to place among the trees. It is worth

noting also that the Manatee Fruit Co., of Palmetto, has established three beeyards in or near their groves, and still wish more. They declare that, the nearer the bees are to their groves, the more fruit they have, and the better the quality. . . . For not only does cross-fertilization increase the amount of fruit, but it also betters the quality, encouraging a heartier growth and development wherever the pollen of one tree is mixed with the blossoms on another tree—just as, for example, a mixture of races produces the hardiest types of mankind.”

Not less than five colonies to an acre are necessary for best results, says the writer, but more are better.

Professor Baldwin's discussion is elementary, but written not so much to convince the layman as to relieve the lamentable lack of information among the growers of citrus fruits.

The National Convention at Denver ; All is Well that Ends Well

SINCE our last report of the proceedings of the National convention there developed toward the last a “little flurry” that promised at one time to develop into something serious; but no sooner had it started than a movement toward peace was under way. The differences and misunderstandings were speedily adjusted. All is well that ends well, and so in this case. We believe the National Beekeepers' Association has a bright future before it. The “bone of contention” for the last two or three years has been over the official organ, the *Beekeepers' Review*, the manner of receiving and disbursing the funds, and the “debt” that has been staring some of the members in the face. No one has questioned the absolute integrity of any of the officials, who have worked faithfully and hard for the best interests of the organization for little or no compensation. A resolution was unanimously adopted, tendering the thanks of the delegates for the faithful and conscientious service of Mr. E. D. Townsend in the conduct of the *Review*; and those of us who have ever had any thing to do with the running of a bee-journal know what that means.

The real question at issue was over the wisdom or policy of handicapping the National by loading on to it the burden and financial responsibility of an official organ and the additional burden of business and finance.

As stated in our last issue, the whole matter was most amicably adjusted by making the function of the National Beekeepers' Association purely educational and

social, with no legal connection with any bee-paper or any matters of business. An auxiliary organization duly incorporated with sufficient capital stock to do business is expected to take over the *Beekeepers' Review*, assume its indebtedness, continue its publication, and transact any matters of business its stockholders may elect. It is expected, also, that the two organizations will be very closely allied, although legally entirely separate. The *Review*, to all intents and purposes, will be the official organ of the old National; but the latter, as explained, will have no financial responsibility for its management.

This, in brief, is the solution of a problem that has sorely vexed the delegates for the last two years. Whether the auxiliary succeeds or not, the result will in no way involve the success of the old National Beekeepers' Association (formerly the North American Beekeepers' Association) that has been in existence for over forty years, and which has been such a power for good. With the “bone of contention” removed, and with no legal or financial responsibility, there is no reason why it cannot be in the future what it has been in the past.

The success of the auxiliary or business organization will depend on how well beekeepers subscribe for its stock and the kind of business manager they select. The Colorado Honey-producers' Association has succeeded because the beekeepers of Colorado organized a stock company, subscribed for the stock, and selected a business manager, who, in the language of the day, has “made good.” If the proposed auxiliary “makes good” it will be largely because of its manager. Many a time a capital has been dissipated by a poor manager, or because the directors failed to support the policies of a good manager.

CONVENTION ECHOES.

Many valuable papers and addresses were given at this convention—perhaps more than were ever given at any previous meeting of the Association. As these will doubtless be given in full in the *Review*, no attempt will be made here to give even a digest of the general papers. As our space is limited we will attempt to cover very briefly those discussions that relate to policies of the National.

INCREASING THE DEMAND FOR HONEY.

The deplorable condition of the extracted-honey market at the present time, as an indirect result of the Great War, received its fair share of attention. Dr. Phillips, of the Department of Agriculture, made the statement, in this connection, that the Government reports showed that as much honey

is now being imported into this country from foreign countries *in a single month* as was formerly imported before the war *in a single year*. When it is considered that South America and the West Indies produce vast quantities of honey, and that the great bulk of it that has hitherto gone to Europe now comes to this country, it will be understood why the price of extracted honey is so low. Of course, the influx of the imported article does not account for *all* of this reduction. Something must be charged up to the general trade conditions as a result of the war.

The members of the convention were by no means unanimous as to the best way to meet this condition. Secretary Williams believed that the National should encourage its members to do local advertising. He mentioned in that connection the value of display advertising-cards which the National could furnish very cheaply to beekeepers; of live-bee demonstrations; of form letters; of articles in the local press calling attention to the use of honey as a food. Such measures would involve but little expense, and yet if all would thus attempt to boost their markets the sale of honey might be enormously increased. In the line of *general* advertising, he suggested that the National raise a fund that could be used for the purpose by getting the beekeepers of the land to submit to a voluntary tax based on so many colonies or so many pounds of honey. If this plan were properly worked, a large sum might be made available for increasing the demand for honey. Some general discussion followed, but no definite plans have been formulated as yet.

NATIONAL PROBLEMS.

On this subject Prof. Francis Jager delivered an address that was listened to with the most careful attention. By the way, he has charge of the apicultural school at the University of Minnesota, Minneapolis, and according to Vice-president Pellett he is making a great success of it. He certainly made a most favorable impression on this convention.

In his address Mr. Jager called attention to the evident errors and inequalities in the United States Census for 1910. For example, Colorado is credited in that report with producing only 4 lbs. per colony, while Minnesota produces 4½ lbs. In the census there are more jackasses than beehives. Many beehives must have been missed. On the whole, our industry seemed to be on the decline when the reverse is true. No account is taken of bees in cities and towns. Why was this? The Government has supported "infant industries" such as the trusts

and the Union Pacific. These babies have now grown large. Our industry is an infant industry. It needs more help. The sum of twenty-five million dollars is annually set aside for agriculture by the Government. We get only a small pittance. In the annual report of the Secretary of Agriculture for 1913, comprising 48 pages, a great deal is said about foreign meats, seeds, sub-tropical fruits, corn, wheat, buckwheat, and potatoes. Even dashens are mentioned, but not one word about bees.

This Association ought to have a committee appointed to see that these discrepancies and omissions do not occur again. If the National Association does not get back of the Census Bureau, the same mistakes and omissions will occur again.

Mr. Jager believed further that the National should have a standing lobby at Washington when Congress is in session. He deplored the efforts of the National to commercialize, as it had been trying to do during the last two or three years, when there was great and important work that ought to be done. Heretofore we have been trying to stick our fingers into the water and then trying to find the hole afterward. It is time we should be doing something. We should appear in *person* before the Government, not in the form of petitions.

This address was roundly applauded; and at its close, Dr. Phillips (supplementing what had been said) went on to explain that, of the sum now devoted to the investigation work in apiculture, not one penny of it had been secured by the National Association.

There was another paper, by Dr. Phillips, on the subject—

DEVELOPMENT OF THE HONEY MARKET.

While he discussed the various methods for doing this he dwelt particularly upon the inadvisability of the association undertaking it on a national scale. He touched upon the subject of co-operation, both local and national. As the subject is naturally one that will provoke controversy, the author's exact words should be taken, and not a digest of them. It was one of the most carefully thought-out papers that were read at the convention. For its full text the reader is referred to the report that will be published in the *Review*.

These various suggestions, so far as they related to policies of the National Association, were incorporated in a set of resolutions that were unanimously adopted.

In conclusion we may say that President Gates made an excellent presiding officer. On the whole the convention was a great success.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



THE winter with its blanket of snow has been fine for white clover, but I'm afraid of the present daily thaw (March 1) with the thermometer at 25 or 30 degrees each night.

WHEN I read of the wonderful work Billy Sunday is doing. I feel proud to think that I live in Marengo, one of the very first places he visited with a series of meetings when he started out on his remarkable career. I believe heartily in Billy Sunday.

THE *Prairie Farmer*, Feb. 13, contains seven articles in reply to inquiries about sweet clover, occupying nearly two pages, and it isn't a special sweet-clover number either. One man in Illinois contemplates sowing seven acres in sweet clover, another forty. That "weed" surely seems coming to the front.

BEES never had less attention from me in winter before. First part of winter was so cold the outside door could be kept nearly shut all the time. Of late, with 25 degrees at night outdoors and 35 daytime, I leave open, day and night, the door opening from outside into the furnace-room, and daytime I keep shut the door between furnace-room and bee-room. That takes the bee-room down to 48 through the night, and up to 55 daytime. Not ideal, but not so very bad.

"OILY waste," says Editor Bixby, *Western Honey Bee*, February, p. 5, "is excellent to start the smoker with . . . but it burns out to a fine impalpable soot that blows out of the smoker on to the comb. I spoiled several sections of comb honey while experimenting with it." Don't know how that is here; but my assistant has a notion it makes the bees cross. [We use the oily waste all the time, and cannot see that the bees are any crosser than they should be. May be they are used to it.—ED.]

DOUBLE telescope covers are warmer than single-board covers, according to page 90, but some will object to their weight. To such let me commend covers like mine, with dead-air space—light as single-board covers, and much warmer. [But they are not heavier. They are made of two separate pieces—a super-cover and a telescope cover. This makes it possible to use packing material between in cool or cold weather. A two-piece cover takes a little more time to handle, and may not be as handy as yours. But yours you cannot pack.—ED.]

IN AMERICA it is the general belief, I think, that, taken all in all, sugar is just as good as honey for bee-food. In Europe there is more of a belief that sugar is deficient as a substitute, and some even go so far as to believe that feeding sugar is to blame more or less for failure of the harvest. The subject is of so much importance that I may be excused for again referring to some things said in back numbers of the German bee-journals; for if the Germans are right we are wrong, and we may do well to find it out. Their argument is this: Besides invert sugar, honey contains pollen, ethereal oil, tannin, malate, tartrate, oxalate, and nitrate of potassa, different phosphates, manganese, natron, silica, sulphur, lime, iron. These things are necessary in the makeup of a bee's body; and although sugar may answer as a heating material in winter, when it comes to supplying material for rearing brood and to repair the waste of mature bees in activity, honey, and not sugar, is the thing needed. So it comes to pass that when sugar is used in spring bees are slow to build up, and attain full vigor only when the harvest is well along and bees are present that have been reared on real honey. Are the Germans right or are we?

FRIGHTFUL indeed is the statement, p. 212, that 4.45 per cent of the American population are drug-users. Well, it's not as dark an outlook as it might be. For not ten hours before I read that statement the new federal regulating act went into effect that has struck terror to the hearts of both vendors and users of cocaine, heroin, etc. In the *Chicago Herald* a dispatch dated Springfield, Ill., Feb. 28, says: "Pathetic pleas received by Gov. Dunne from 'dope fiends' who threaten suicide unless they are given aid in procuring drugs after their supply is cut off by the federal regulating act, which goes into effect at midnight, have brought home to the state administration the suffering the new law will bring to thousands in Illinois." Each writer asserts that he has been a habitual user of drugs for years, has tried to quit and cannot, and asks the state to furnish specified drugs in gradually diminishing doses, with the certainty that if this request is not complied with there is nothing left but death. Likely, however, when they find they can't get the dope they'll manage to rub along without it. Even if they should all commit suicide it might be a cheap price to pay for shutting off the further crop of victims.

J. E. Crane

SIFTINGS

Middlebury, Vt.



I never expect to visit Brazil; but looking at that cover picture for January 1 is almost as good, and a great deal easier.

The editor says, page 2, Jan. 1, "The best time in all the world to move bees from outyards to home cellars is when there is good sleighing." He hit the nail squarely on the head that time.

According to a bulletin issued by the U. S. Department of Agriculture, cane sugar contains 1.27 per cent of ash, while beet sugar contains 2.56 per cent. This may account for the prejudice against beet sugar as a winter food for bees.

Dr. Miller says, page 51, Jan. 15, "With almost any kind of bees I think there will be an occasional colony that will have watery sealing." Did he ever see any watery sealing of surplus combs filled by black bees?

If the GLEANINGS schedule for 1915 were not already so full of special numbers I would suggest one on sweet clover. [We have an immense amount of material on this subject—nearly enough for such a special number.—Ed.]

I am glad to see on page 66, Jan. 15, that C. H. Clute, of Palmetto, Fla., has had a good crop of honey the past season. Mr. Clute is an exceedingly intelligent beekeeper, and has had a very large experience with bees in different sections of the country.

"Skunks, skunks, skunks," shouts Mr. Chadwick, page 970, and I will echo from this side of the continent, "skunks, skunks, skunks." If they do not do as much harm here as on the Pacific coast it is doubtless because they are more hunted for their furs. They are the same scamps here as there, and I have found Mr. Chadwick's remedy very effectual. But we have to look out for our neighbors' dogs and cats.

On page 925, Dec. 1, in a footnote the editor says that stimulative feeding can seldom be practiced in the spring to advantage. I fear he has forgotten the fact that very frequently we have two or three weeks between fruit-bloom and clover when very little

or no honey or pollen is coming in; and unless there has been a good flow before this, and the hives well supplied with honey, feeding not only pays well, but is sometimes of the utmost importance.

Mr. Wesley Foster, page 927, December 1, thinks we may estimate the cost of a pound of honey very accurately. We may be able to estimate what it has cost to produce a given number of pounds in any past season; and by getting the average for a good many seasons forecast what it is likely to cost in the future; but our seasons are so variable that I believe it is utterly impossible to tell accurately what the cost of honey is going to be to the producer this year or next year, or the year after.

Hildreth & Segelken, in the market report on page 5, Dec. 1, say, "We have had a good deal of trouble with New York honey on account of its candying and granulating. Shipments which we received a month ago are now candied solid, and are being returned by us to our customers. It is the first year we have been in the business when we have had so much comb honey candied." This trouble is also prevalent in western Vermont. I have wondered if it were not owing to the gathering of honey from unusual sources. While clover gave very little honey in 1914, dandelion and vetch appeared to be our chief source of surplus honey.

Dr. C. C. Miller, page 51, Jan. 15, calls attention to a statement in the *British Bee Journal* that extracting-combs put away wet will not be attacked by bee-moths, and gives as an illustration a pile of wet combs with dry ones in the center which were all eaten up while the wet combs were unharmed. To this the editor of GLEANINGS wisely remarks, "This is interesting if true."

Now, this statement, like many others, is partly true and partly false. If wet extracting-combs are white and clean, free from pollen or dead bees, the larvæ of the wax-moth will not develop on them. If there is pollen in them, these worms will develop in spite of the statement in the *British Bee Journal*; but if there are mixed with the pile of wet combs some dry combs the worms are likely to leave the wet combs when quite small and take to the dry ones, and eat them up and leave the wet combs unharmed. [See what Louis Scholl says in his department.—Ed.]

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



Unite your weak colonies, secure your honey crop, then divide just at the close of the season, thus getting service out of two weak colonies that neither alone could have given, and still maintain the original number of colonies.

A bee heavily laden with pollen became chilled before reaching its hive. It was forced to alight, but failed to take wing before it was accidentally washed from its position by a flush of water. It became soaked, and was washed to the ground. Mrs. Chadwick carefully picked it up and placed it on top of a warm hive-lid in the sun. After a time it regained its usual activity, but for some reason removed the pollen from its legs before trying to continue its journey.

As much old honey as possible should be taken from the extracting-combs before the flow begins if a light grade of honey is expected. Most of our southern California bees have more honey than they will be able to use before the new crop comes in. The larger part of this left-over honey is dark and inferior in grade, and, if blended with the new crop, it will cause it to be off in color with a resulting lower price. It is not safe to extract close, however, for a week or ten days of bad weather when a colony has much brood and many bees will put them on the starving list. A number of combs set aside and not extracted are worth much at such times. In fact, if the season is doubtful it is much the better plan to set all surplus honey away in the combs until the season is far enough advanced to enable one to know whether it is best to extract or return it to the hives. Remember sealed honey is superior to sugar as bee food. Do not remove it so closely that it may discourage the free use for breeding. Do not try to remove old honey after the combs are partially filled with raw nectar. The result will be that you will have a lot of sour honey on hand that is neither fit for feed nor for sale. It is a good plan to keep a few cases on hand in case of need for feed.

Mr. H. hired a small boy to assist him in his work with his bees. The boy was at the question-asking age, and kept a continual line of questions coming all of the time.

One hot summer day Mr. H. and the boy were slowly traveling up a mountain canyon toward Mr. H.'s apiary. Even the old horse seemed to have been affected by the drowsiness of the occasion. Mr. H. was in a deep brown study, while the boy was asking questions without number. Mr. H. answered in a half-conscious manner to fill only the place of courtesy. The boy said, "Mr. H., how many bees are there in a hive?"

Mr. H. lazily said, "Oh! about 40,000."

"How much honey will a bee gather in a year?" said the boy.

"Oh! about half a pound."

There was a sudden change in the boy's voice, and Mr. H. came out of his stupor in time to hear the boy say, "Twenty thousand pounds! Mr. H, you are the biggest liar I ever heard of."

Mr. H. could but catch the mirth of the occasion, and had to agree that he might have estimated too high.

What has become of our foul-brood bill? I have heard nothing from it since our state convention. However, I must admit I am not very enthusiastic over it, for the reason that its passage seemed to me to have degenerated long ago into a political matter, especially after it was decided to force it on to the Governor with the same objectionable features it contained when he refused to sign it before. It lacks entirely one provision of great importance. It has no provision that will do away with selfish county ordinances that we have to contend with, and of which there is a chance for as many different kinds as there are counties. There should be a freedom of commercial shipments from place to place. One inspector's work should be equal to that of any other. When a shipment of bees goes to a county line with a health certificate from an inspector they should be admitted on that certificate. The traffic in bees should not be stifled by local ordinances that really have no object except as a pretext to keep other bees out. As an illustration I will cite the fact that my apiary is in Riverside Co., yet my home and a part of my bees are in San Bernardino Co. I often wish to take bees and fixtures from place to place, and such an ordinance would be an intolerable nuisance to me, though I never move bees from either place to the other without inspection.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.



"Spring cleaning time" will soon be here again. It is the time when our apiaries should receive a general overhauling and cleanup. It is just as necessary and essential to have these apiary cleanup days as to have them in our homes. And don't forget the honey-house and the workshop.

"What a difference between the North and the South!" was an exclamation that slipped from my lips when reading one of the recent numbers of GLEANINGS. Ice and snow, bees in the cellars or stored away in winter cases of various kinds, many of the apiaries covered with snow several feet deep. How different it was here! Our men have been visiting our yards and preparing the colonies for the opening of spring. They were still taking off supers of fine comb honey. On some of the hives there were as many as four and five of these filled supers of white honey. The weather was fine, and quite warm on sunny days when it did not rain. We had much rainy weather, or the weather might have been still nicer. Once in a while we had cold days, but all in all it was very different from that up north.

Snow? Yes, we had some snow on the 18th of January. Every thing was beautifully white early in the morning, as there was about an inch of it.

ESTABLISHING NEW APIARIES.

Our men are now busy equalizing the number of colonies in our apiaries by moving away to new locations all colonies in excess of forty. We usually do this every spring. The forty-colony apiaries are increased in size before the honey-flow by about ten colonies, and often by about that many more in the fall. Thus the main honey-flows are taken care of by fifty-colony apiaries, more or less, which we have found to give us better results than larger yards. During the following spring these are cut down again to forty colonies, and the surplus moved away to form as many more forty-colony yards as we have bees for them.

WORKING UP A RETAIL MARKET.

Ira Davis, of Taylor, Texas, has a unique method of establishing a market for his honey. He produces chiefly extracted honey, and during the honey season devotes all his efforts toward producing a large crop.

He utilizes the more or less idle time of the winter months in disposing of this honey. He proceeds to a town or city of fairly large population, to which he has shipped ahead of him a quantity of honey in 60-lb. cans, and starts at once to establish a honey-bottling business to furnish the retail trade with honey in glass. As soon as he has this well started he turns the business over to a responsible person, either by sale or other arrangement, and with the condition that he furnish the honey for this business. Under his present arrangement and prices this is fairly profitable to both parties to the agreement.

CYPRIONS TO PREVENT MEDDLING.

An enquiry for Cyprian queens has just reached me. They are wanted to stock an apiary with the "most vicious bees obtainable so as to keep meddlers away who have disturbed the apiary occasionally, and at the same time give bigger honey yields than Italians or blacks." While I have tried almost all the varieties of bees, the Cyprians among them, I am still of the opinion that the three-banded Italian is superior for all-round purposes. And while the Cyprians are more vicious I doubt the advisability of introducing this race into an apiary for the purpose stated. The chances are that the meddling would go on just the same. The Cyprian bees would not give any larger yields, and the disadvantages resulting from the handling of bees of such reputed ill temper would be found exceedingly unpleasant. Wiser to prevent the meddling by some other means.

THE DENVER CONVENTION AND THE PROGRAM.

It is too bad that one cannot be at more than one place at a time. I should like to have attended the Denver convention. Well do I remember the last Denver convention I attended a number of years ago, and the enjoyable and profitable time spent at this convention and my thirty days' sojourn through the greater part of Colorado on a trip of investigation into apicultural conditions for the Department of Entomology of the Texas A. and M. College.

One thing in connection with the program of the present convention that has been of considerable regret to me was the entire absence of beekeepers from the southern states. One from Cuba was on the program. Does this mean that we are not a part of the National Beekeepers'

Association, or not worthy to receive at least some recognition? I believe that Texas, at least, has quite a few members in the National, and I also feel that we have some beekeepers down here who are well enough posted on apicultural matters to deserve at least a place on the program of the association.

* * *

WET EXTRACTING-COMBS AND BEE-MOTH.

There seems to be quite a difference in locality if we compare the doings of our bee-moths here in the South with the incident quoted by Dr. Miller on page 51, Jan. 15, from the *British Bee Journal*. My experience in beekeeping here in Texas has given me much information on the bee-moth problem. I have learned that moths not only play havoc with dry combs as soon as these are left without proper protection, but with wonderful rapidity they destroy wet combs that have been extracted only a few days before. Yes, they even go so far here as to pay no attention to the quantity of honey there may be on the combs or in them. Whole stacks of supers of comb honey will be ruined in a very short time if left unprotected at any time during spring, summer, and fall.

I have had some sad experiences. Our assistants were unable to extract promptly a large amount of honey brought into the honey-house. The first sign of these bee-moth depredations is the amount of leaking honey on the floor; and in one instance in which other important duties delayed the extracting work for more than a week, the honey-house floor was covered almost entirely with half an inch of such honey. Over four gallons of it was scraped up from the floor and set aside for feeding purposes. During the extracting of these infested stacks of honey we found scores of combs, the entire lot of which were nearly all filled solid with honey, and well capped over, riddled to such an extent that the remaining mass of honey, what little wax was left, and the webs and moth-larvæ, fell out of the frames when they were handled. From the damage done in instances of this kind I can hardly believe that the bee-moths would ignore wet extracted combs just because they were wet, although they may have a preference for dry combs. My explanation for the case cited by W. Herod in the *British Bee Journal* would be that the dry combs were infested with some bee-moth eggs or young larvæ, perhaps, left undisturbed when stacked up with the wet combs. These then developed to maturity and found sufficient sustenance upon these dry combs without having to go to the wet

combs in the adjoining supers. I venture the assertion that depredations upon the adjoining wet combs would have been made if a large number of larvæ had needed more food for their complete development. [See what J. E. Crane says in his department.—ED.]

* * *

PREPARING FOR SWARM PREVENTION.

Already we are fixing up our colonies with the view of cutting down swarming as much as possible. Since our colonies are in excellent condition, strong in bees, the hives full of stores, and as the weather has been quite favorable, the colonies have been rearing brood to quite an extent. If such favorable conditions continue, the hives will soon be very populous. It would be sinful to try to keep them crowded down in a ten-frame hive as used to be the fashion. And, by the way, our two shallow-story brood-chambers have a comb surface equal to twelve Langstroth frames. But even this is not enough in the spring, so we are busy at this time to provide every colony, that is not already so equipped, with a super partly filled with combs of honey, some empty combs, and some frames filled with full sheets of foundation. That will give additional room in which to store any of the scattering honey that the bees begin to store, early in the year, above the daily needs, besides affording a storage place for any honey that is moved from out the brood-chamber proper in making room for the queen to lay the increasing number of eggs. A little later the queen will find additional laying room in the added super. The bees are also given an opportunity for new comb-building in the frames with foundation.

The result will be that the colony will remain contented longer on account of the ample room furnished in the manner described, there will be stronger colonies from the fact of the increased breeding room, and there will be less desire to swarm, due to the fact that there is not the crowded condition that colonies are subjected to under the old method of management. A little later, if it becomes necessary at all, we sometimes interchange the two shallow stories of the sectional brood-chamber proper, placing the lower one on top of the second shallow story, replacing the super back on top, and swarming is delayed for several weeks longer, and usually prevented altogether by the time our early honey-flow begins. When these have begun there is no more swarming. But, after all, the secret is to begin to prevent swarming before the desire to swarm has ever awakened in the colonies. Remember that.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



AN APIARY RECORD.

"I desire to keep a record of each colony. Up to the present I have trusted to memory regarding the condition of the different colonies in the apiary; but as their numbers increase I find memory inadequate. As soon as the snow goes off I propose to lay out my beeyard in rows and number each hive, beginning with one on the first row and going to 20 with that row; then commencing with 21 for the second row and ending with 40, and in this way continuing till I have 100 colonies in five rows. If I desire more than the 100 colonies I will start an out-apiary laid out on this same plan. Will you tell me some of the ways practical beekeepers keep a record of their colonies?"

It would seem that there should be a *best* way for this record-keeping; but there is a rare faculty which beekeepers have of thinking that the way in which they commenced must certainly be the best. Some successful apiarists tack a piece of section on the back of the hive just under the cover; and after each inspection of the colony inside this hive, any thing necessary regarding its condition is jotted down by a few shorthand characters or letters which tell all they wish to know about that colony during any season. This bit of section is left on the hive until the next spring, when the colony is looked over at the opening of the season, when, by glancing over the last year's record, the memory is refreshed regarding the colony's previous standing. The old record is prised off and the record for another year is established on a new piece. If the colony proves to be of special value, then the old piece of section is tacked on the under side of the cover, and preserved, so that a continuous record can be maintained for a term of years, or as long as particular interest attaches to the inmates of that hive.

Other successful apiarists are sure there is nothing equal to a book to keep a record in. Years ago I visited an apiary where the proprietor had kept a book regarding it for twelve years, giving a leaf to each colony, and a line of this leaf for each year. The side of the first leaf next the front cover briefly explained the signs used, while the opposite side of the leaf was devoted to colony No. 1 of the apiary. Page 1 and line 1 had all to do with the kind and age of queen, swarming, etc., for the first year,

while the first line on page 2 was used to tell how many pounds of honey colony No. 1 gave the first year, how much had been expended on it in feed, or for any other expense, thus giving the net result by taking the expenses of the colony from what the honey sold for. The second year, line No. 2 was used on pages 1 and 2 for this same colony, and in this way this apiarist had on one sheet all about colony No. 1, and what it had given him in net profit for twelve years. And as each page had twenty-five lines, this book was still good for thirteen years more for colony No. 1. Colony No. 2 had pages 3 and 4; colony No. 3, pages 5 and 6, and so on according to the number of colonies in the apiary.

This looked more businesslike than any thing I had run across up to that time; and when he told me of the enjoyment he had in looking that record over during the cold winter evenings, and the plans he made for each colony during the coming season, I was quite sure that this was the best plan. But when I came to carrying the matter out I found that the wind would shut the book so unceremoniously, and, in spite of my best endeavors, open it in a wrong place, that too much time was wasted. Not only this, the honey and propolis the paper absorbed from my hands would so stick the leaves together as to make it very disagreeable, and partly obliterate much of the record unless I carried water and a towel along with me.

I next adopted the record-board plan, as it is styled by those using it, and see no reason for using any thing else. Little squares are laid out for each hive—each in its place, and each row shown in squares. Each square is numbered the same as its hive, and in these squares I make a record at each manipulation, giving by brief signs the condition of each colony and its needs as to queen, stores, brood, preparation for swarming, etc. A board 12 x 20 x $\frac{3}{8}$ made smooth on both sides will answer very nicely for an apiary of 100 colonies. Then with this board before me I have the apiary spread out to my gaze at any time I may wish to know about it, and from it I lay out my plans on any rainy day or when I am sitting in the shade for a brief rest from the hot sun on some July or August afternoon. Now, I do not say that this record-board is the best, but that it suits me the best of any thing I have ever tried.

GENERAL CORRESPONDENCE

THE EDITOR'S CRUISER TRIP UP THE LOXAHATCHIE RIVER

BY E. R. ROOT

Our cruising party arrived at Jupiter, Florida, a little town where is located next to the largest wireless station that Uncle Sam owns. We tied to the government dock, got our supper, went to bed, and next morning we waited for Harry DuBois, the bee-man who was to meet us by appointment. We did not have to wait very long, for he soon came up with his gasoline-launch. Our party left the cruiser up at the dock and started with Mr. DuBois in his launch up the Loxahatchie River to see the country, study the flora, and stop at Mr. DuBois' outyard.

After an hour or two we drew up to one of Harry's outyards, as shown, Fig. 1. This shows his manner of protecting his hives from the intense heat of the sun. You will note that the apiary is shaded in much the same way that is done in Arizona, where the heat of the sun is intense, with this difference, that Mr. DuBois does not use a solid cover, but rather open slat work—just enough to break up the solid rays of the sun. At times he finds that this overhead

shed is insufficient, and so he uses in addition an extra shade-board, or, rather, a sheet of galvanized roofing, which is separated from the cover proper by a couple of cross-cleats.

We were about to go into his yard when Harry suggested that we had better put on our veils—a wise precaution as subsequent events proved; for the bees met us more than half way. But they are great honey-gatherers, and that was a consideration with their owner. After catching a snapshot of the yard, and looking into a few colonies, we went back to the boat to resume our delightful ride up that beautiful river. There was not a breath of air stirring, and the surface of the water was like glass. Large fish could plainly be seen under us. At every turn new beauties presented themselves. The water was so placid that it mirrored the surrounding scenery down into the river; and if we could by some means have been turned upside down we should scarcely have known which was the real and which was the reflected image. Fig. 2 gives



FIG. 1.—Harry DuBois' apiary on the Loxahatchie River, Florida. The idea of the overhead screen is not to shut off the sun's rays entirely, but to break them up. Too much shade does as much harm as too little in this country.



FIG. 2.—One of the beautiful views on the Loxahatchie River over which the editor and his party cruised.

a mild conception of the beautiful views on the Loxahatchie.

I should like nothing better than to spend a week fishing on this river—especially if I could have an expert fisherman like Harry to tell me what I did not know about the sport, and that would comprise a volume.

After we had gone up the river some twenty miles we came back and stopped at Harry's home. It is built on some shell mounds of a prehistoric race that evidently lived on oysters and fish. By digging into the bank we could find here and there fragments of old pots and kettles.

In going up and down the river that day I noticed acres and acres of scrub palmetto; and as the land grew better in spots this palmetto grew larger. The stunted growth of the palmetto on poor land, said Harry, does not permit of its yielding much honey; but where the land is good the palmetto reaches a height of six or eight feet, and then the yield of honey is fair. As everywhere else in Florida, the flow is in direct proportion to the richness or fertility of the soil. This is especially true on the Loxahatchie River. Pennyroyal comes in to help build up the colonies. Without it there is not much hope of a crop except by direct feeding, and the yields of honey are so light in this locality that Mr. DuBois says he cannot keep more than thirty or forty colonies to the yard. This is a very different condition from what we found on the Apalachicola River, where it is possible

to put ten times that number in a single location. From a general survey on the Loxahatchie one is forced to the conclusion that this is not an ideal bee country; but it makes a fair living for one man providing he can have all the territory to himself, and provided, also, that he can devote the off seasons to fishing on the river or out on the ocean. Mr. DuBois is not only an expert beekeeper, but he is a skillful fisherman as well. When he first came down into this country he went into truck-gardening; and while he got fairly good results it did not pay him as well as beekeeping. Ever since he has taken up bees he has made a better living than with gardening or fishing alone.

Speaking about fishing reminds me that at Jupiter and Pompano, a little below, is where the famous Pompano fish are caught. These fish retail at a dollar a pound. There is probably no fish in all the world that will compare with this particular fish for the table. At least I never ate any thing their equal, and I am told this is the verdict of every one who has tasted them.

The Loxahatchie is no bee paradise, whatever we may say of its beauties from a scenic point of view; and for this reason Mr. DuBois will not be interrupted in the quiet possession of his territory.

Before we bid good-by to our friend we must take a picture of him and his wife. Fig. 3 shows them on the porch overlooking the Atlantic Ocean.

The next morning we started off on our



FIG. 3.—Mr. and Mrs. Harry DuBois, of Jupiter, Fla., on the front porch overlooking the Atlantic Ocean.

cruise to Pompano, a location formerly owned by Mr. O. O. Poppleton, referred to an issue or two back, and where The A. I. Root Co. now owns and operates a small beeyard under the direction of Mr. W. A. Selser, who is now in Florida. We arrived at the place toward night. Fig. 4 shows the remnants of Mr. Poppleton's beeyard in the background and a vigorous date palm at the right, and Fig. 5 a general view of the surroundings. Here lives Mr. I. I. Hardy,

who runs quite an extensive truck-garden. At the time of our arrival there had been a frost—the only one in several years; but severe enough to freeze down acres and acres of tomatoes. Many of the truck-gardeners along the way that morning were very blue. While the Pompano vines were touched slightly, no great damage was done.

It will be remembered that Pompano is the place mentioned by Mr. Poppleton where bees could breed every month in the year. In fact, it is the location he used for years for building up his colonies. It affords large amounts of pollen and some honey clear on through the year. There is only one objection, and that is the number of dragon-flies that come on in April; but usually Mr. Poppleton can avoid these by moving his bees to other locations, and where there is honey too.

The A. I. Root Co. has purchased from Mr. Poppleton the bee rights and his build-



FIG. 4.—The Pompano location in Florida where The A. I. Root Co. now has a small apiary. The palm on the right is characteristic of this south land.



FIG. 5.—A more distant view of the Pompano apiary, showing the water frontage and the beehouse in the left background.

ings. We are experimenting in this location with the view of seeing what can be done in the way of breeding bees there every month in the year, and then shipping them north. The question of freights will probably be considerable of an item; but we hope we can deliver them by boat to New York or Philadelphia, and then distribute the bees from those points. In case a pre-

liminary test proves to be satisfactory we probably shall keep a man there a good part of the year to rear bees and queens. But nothing will be done during April on account of the dragon-flies. We are waiting to see how destructive they are to bees, and hence we have only fifteen or twenty colonies there. If the increase is satisfactory we shall have more.

WINTER STORES; SUGAR SYRUP PREFERRED FOR COLD WEATHER; SEALED HONEY FOR BUILDING UP IN THE SPRING

BY GEORGE SHIBER

Much has been written during the past year or so about the difference between sugar syrup and natural stores for winter.

My experience in wintering many colonies during a number of years indicates that, for a strictly winter food, and by that I mean the cold-weather food, nothing equals sugar syrup. I am also prepared to believe that ten pounds of sugar will not make much more than that number of pounds of stores after the bees have been fed. I also feel from observation that ten pounds of sealed honey will go further (during the cold weather) than ten pounds of sealed syrup. The reason why syrup is better for the confinement period is because it is easier on the bees. They can stand a long-

er confinement and come out healthier than on natural stores. I have noticed this many times. To-day, Feb. 19, the bees that had sugar are small, lively, and healthy, while those colonies that had only natural stores have touches of dysentery—not bad, however.

If my bees can have a fly some time the last of January I feel perfectly safe with fall honey; but if they cannot have this chance it is more or less risky. But with sugar syrup I would not worry if they did not fly before March.

I have had colonies winter on sugar that, after their confinement, showed absolutely no spotting of the hives when they had their flight. The spotting is always evident

when the bees have wintered with natural stores. That is my observation. For building up in the spring, whether the bees were wintered out of doors or in the cellar, nothing equals sealed combs of natural stores.

Here is my ideal way of preparing a colony for winter. We will say the hive contains about fifteen or twenty pounds of sealed stores. Some time during the last of October (as late as we can) the colony is given a ten-pound pail of two-to-one syrup. Sometimes it is a little richer than that. This will last the bees pretty well

through the cold period, and they use the natural stores to build up on in the spring. This is by far the best plan for successfully getting the bees over the winter period that I know of. This colony will probably consume more than the ten pounds of syrup before cold weather is over, when, of course, they would begin on natural stores, so if they did not fly until March the residue from the smaller amounts consumed would not be great enough to interfere with their health.

Randolph, N. Y.

INDIANA NOTES; GEE OR HAW?

BY S. H. BURTON

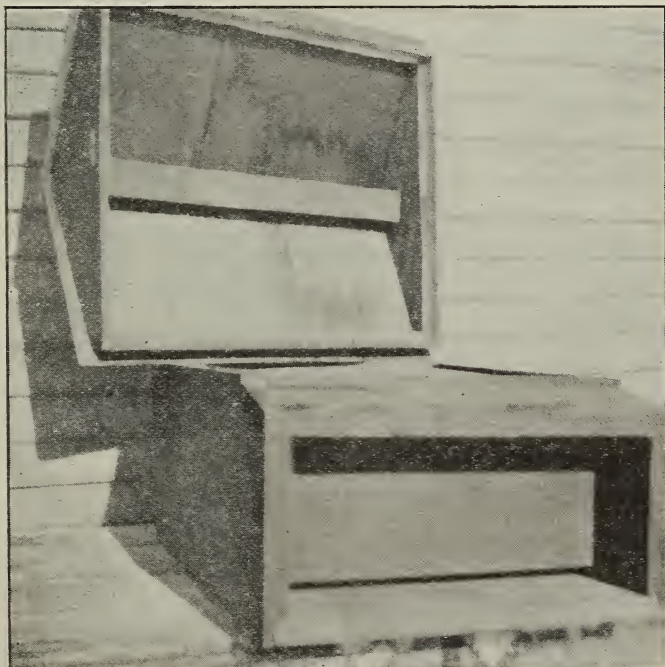
When doctors disagree, it's time for plain fellows to get together. There is an interesting difference of opinion concerning what the beekeeper should do in the way of using sealed covers or absorbent cushions. Why not let nature and the bees settle that themselves? Man thinks himself pretty smart in that he can improve on nature's laws, which, to a certain extent, is true; but in some cases it were better if we be not so self-conceited. Why do the bees glue up every thing air-tight at the approach of cold weather? I have cut a good many bee-trees, and have yet to find one with any kind of ventilation at the top. I have bought and transferred a good many colonies in old box hives and gums, and the colonies were invariably strong. The inside of these old homes would be varnished over with bee-glue an eighth of an inch thick.

It is perplexing to hear so many authorities disagree; but it is the man who goes to the bees himself for an answer who finds success within his grasp.

Whether we gain by heeding Gee or Haw depends on how near we are to what nature intended, and we at least strike a happy medium.

NEED FOR A LARGER PACKAGE.

I wish some manufacturer would turn out a glass-front shipping-case of just the right dimensions to hold eight shallow extracting-frames $4\frac{1}{2}$ inches deep. The consumption of honey can be more than doubled by marketing it in larger individual packages. I have always maintained that the section box is too small a package for the average family. Place a section of honey on the table where there are children, and what is



The framework is like that of a miniature house.

left for the next meal wouldn't start a case of robbing among the bees.

Several advantages are gained in marketing comb honey in the shallow extracting-frame—viz., a greater surface of comb is exposed, giving a better appearance, which attracts the eye of the consumer; it will stand shipping better because it is more firmly attached to the four sides of the frame; it will increase the demand for honey through increased consumption, and can be produced for less than the section honey. Actual sales at four leading grocery stores showed the startling comparison that one shallow extracting-frame was sold for every single section that was purchased, the section honey retailing at 20 cts. per section, and the shallow extracting-frames selling for 75 cts. each, or 15 cts. per pound. A glass-front case was made to hold eight of these frames. All frames but the one next to the glass were wrapped in oiled paper and tied both ways with yellow "baby ribbon," which is about $\frac{3}{8}$ inch wide. This makes a neat, attractive, and fast-selling article.

A NEW HIVE-ROOF.

Has any one tried a shingle roof for a hive? The accompanying photographs show one as constructed by a beehive manufacturer here. His claims for this cover are that, since it is constructed like the roof of a house, it affords ample ventilation in summer; is as waterproof and durable as a shingle-roof house, and cannot warp nor get out of shape.

The framework—that is, the rafters and bottom plate—are cut and constructed on the order of a miniature house roof, and the shingles are nailed on the same as on any shingle roof.

I have tried this cover for several seasons, and find that it is all the owner claims for it. However, my chief objections to such a cover are that it is heavy and cumbersome, and cannot be stacked for storage compactly. It also has to be handled very carefully in order not to knock the shingles loose.

For a hive cover for the eight-frame hive I am using a cypress board one inch thick, 16 inches wide, and 22 inches long. Across the ends I nail an inch-square oak strip and clinch the nails on the under side. These inch oak strips prevent warping, and add sufficient weight to the cover to prevent its being easily blown off. Properly painted, these covers last for years, and cost about 25 cts. each.

SUCCESSFUL TRANSFERRING.

Transferring to cure American foul brood after the fall flow has ceased is usually deferred until the following spring; but we

have adopted the following plan with good success: To do the work safely, select bright cool mornings in the latter part of October, when there is no danger of other bees flying, and do the work on the "installment plan." Begin by removing the two outside brood-frames; close up the hive and put the two frames out of reach of the bees, being careful that not a drop of honey is left exposed. The following morning, if the weather is favorable, remove two more brood-frames, shaking or brushing the bees off into the hive. Follow this procedure till only two frames are left in the middle of the hive. Late in the evening part these two frames and slip in two brood-frames between with full sheets of foundation.

Quickly remove the two remaining brood-frames and shake or brush the bees off into the hive. Spread a cloth over the frames, A shape; close up the hive, and after dark close up the entrance. Leave the bees thus 48 hours. Have a new hive prepared with full sheets of honey, removing two cen-

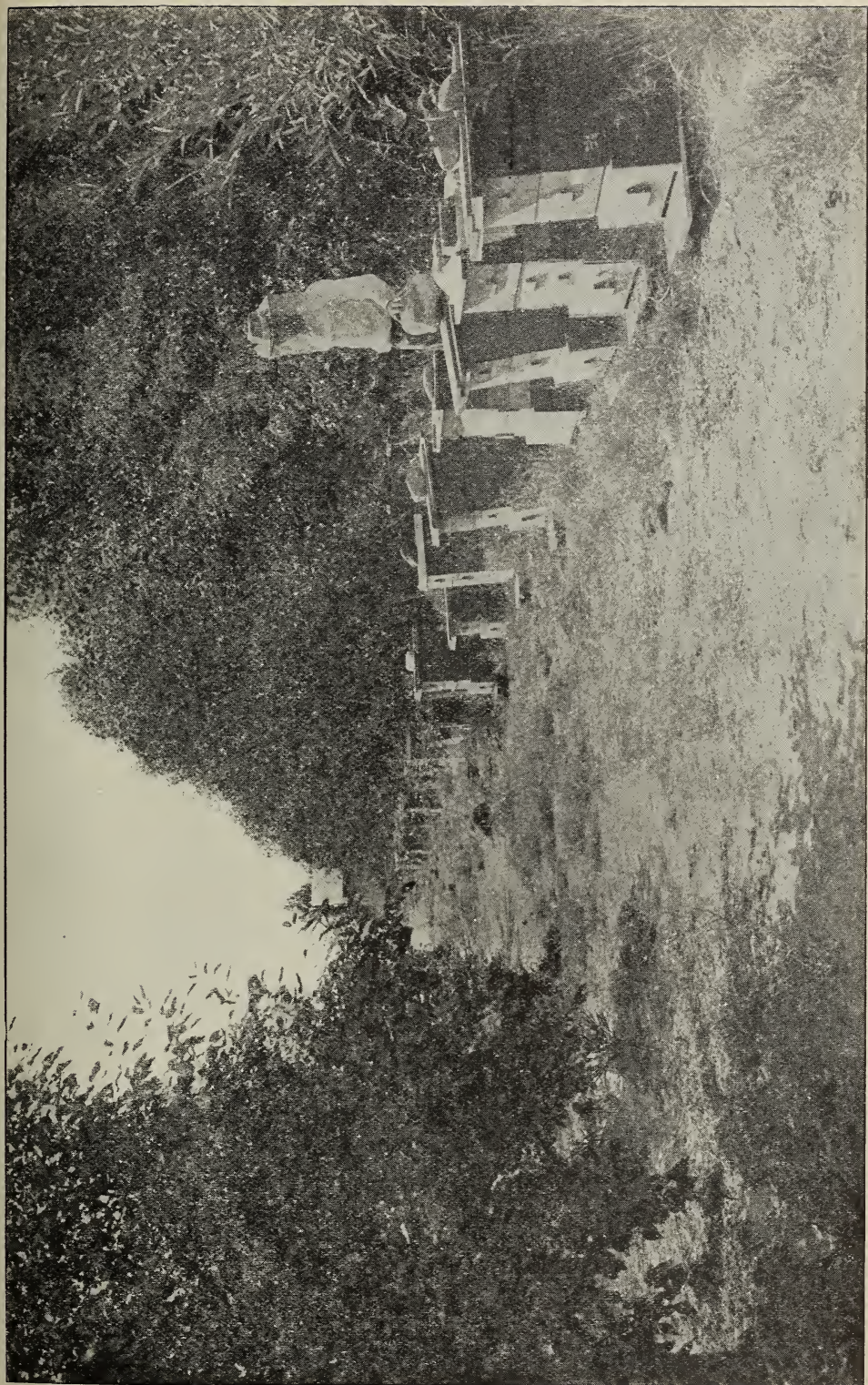


The cover is built like the roof of a house.

tral frames. Late in the evening move the old hive alongside the new one; lift the bees from the old hive which are adhering to the frames of foundation, and slip in place in the new one. Some bees will also be clustered on the cloth, and this can be spread over the new hive. The remaining bees in the old hive can be dumped at the entrance. The bees quickly shaken from the last two old frames have very little opportunity of taking much honey with them. Being confined 48 hours they consume what stores they have with them.

We find that by thus transferring in the fall the bees draw out the new foundation, the queen starts laying, and we are in ship-shape for the coming of spring.

Washington, Ind.



One row of hives in the Wisteria Apiary, Riverton, Wyoming.

CONQUERING COLD IN WYOMING

BY E. H. RYAN

I am an amateur beekeeper. I have been in the business about five years, and have had many reverses in losses of colonies, but only from cold winters. It is sometimes 40 below zero here for several nights at a time.

There is only one way to handle bees successfully here, and that is to use double-walled hives packed underneath the bottom-boards with straw. The bottom-board must be ten or twelve inches from the ground.

I also use a gunny sack over the hive, under the cover, allowing it to hang down over the sides and entrance to ward off the snow.

On warm days the sack is turned up

from the entrance so that the bees can get out and fly.

I have a house 16 x 20, with a basement under it. I extract the honey in the house, and pipe it through the floor into the strainer over the storage-tank in the basement. Here it is canned up and stored. I use a six-frame automatic extractor and gasoline-engine. I have never made less than 200 lbs. surplus per colony, spring count, and some colonies have made as much as 500 lbs. extracted honey in a season.

There is abundant pasture right at hand, consisting mainly of sweet clover and alfalfa. The honey is principally sweet clover.

Wisteria Apiary, Riverton, Wyo.

SETTING BEES OUT OF THE CELLAR

How to Prevent Drifting and General Demoralization

BY E. S. MILES

The time to get the bees out seems to me more of a problem than the time to put them in. After they are in we care little what kind of weather comes, as it cannot affect the bees in the right kind of cave or cellar. But in the spring it is the other way. After they are out, the weather does affect them considerably. After the time when bad blizzards are not likely to come, or long-continued cold, if the bees can be taken out so as to get a nice warm sunny day for a cleansing flight, they will endure much bad weather and yet mature some brood; and if there are plenty of stores in the hive, as there should be, they will have a nice lot of young vigorous bees by fruit bloom to replace the loss from old age, which is quite heavy in spring.

In getting cellared bees established again on their summer stands there are two things to be guarded against—namely, mixing up and robbing. Where a lot of bees are confined to a small space for several months, as in a cellar, they do not always seem to know "which from t'other" when first set on their summer stands. This sometimes leads to robbing, which, when once started, is hard to stop. Any thing tending to confuse the bees or cause them to lose the location of their own hive, and get into another, will increase the danger of robbing getting started. To avoid mixing up and robbing we recommend the following procedure, which, while it may not always prevent, will reduce these troubles to the minimum if care is used.

For setting the bees out, choose a still sunny day, only moderately warm—from 50 to 60 Fahrenheit will do. Set out as many as possible as early in the day as the temperature will allow; put all colonies on the same stands they occupied the fall before, and contract all entrances immediately, before any bees fly. It is a help also if the apiary is located so as to contain some shrubbery or small trees or buildings, as these will divide the bees and make them notice their location better. A small apiary, less than 50 colonies, will not be as hard to manage on this score as one containing 100 or 150 colonies.

The advice has been frequently given in the journals to disregard the previous location of the hive in setting out in the spring. This is a mistake, especially in a large apiary. To those who doubt that bees remember the location of their hive over winter, we wish to recommend this experiment: When you take out your first colony, instead of setting it on its old stand set it on a new one anywhere in the apiary, having first set an empty hive, like it in looks, on the stand it occupied. Now watch the empty hive a little while and see whether any bees, after circling around, will come back to the old location. If your bees are like mine a good many will be seen hovering around the old location in a short time after the colony starts to fly. If you now set another colony from the cellar in place of the empty hive, quite likely some of these bees will alight and unite with that

colony. If no other hive was put out, however, they would soon find their own. The more hives put out, on the other hand, make it more unlikely that they will find their own.

There are certain colonies that seem to be inclined to welcome all comers; and as soon as some of the lost bees alight at these entrances, and start the "home call" it means a steady gathering of the strays, so that certain hives are packed full while others are depleted.

Another thing that tends toward the same results is to leave too large an entrance during the first flight. There is no need of a large entrance at this time except where the bottoms have been left on over winter, and the bees are expected to clean them of dead bees and cappings. It is more economical and much better to winter the colonies without bottoms, thus having clean ones to set them on each spring. But if they are on, rather than make the bees clean them we would change each one when setting out, getting a clean one to start with, and after changing the first one clean that one for the next hive, and so on, so that all have clean bottoms when through.

Contract the ordinary $\frac{3}{8}$ -inch entrance to one or two inches in width for fair to good colonies, and $\frac{1}{2}$ to $\frac{3}{4}$ inch for weak ones. This is more to prevent the bees getting into the air too fast than to prevent robbing.

If bees are set out on a windy day they are pretty sure to "drift"—that is, head up against the wind, and go into the hives on the windward side of the apiary. The only reasonably sure way to prevent this is to avoid setting them out on a windy day, although it may help some to set the leeward side out first, letting as many bees return as time will permit before putting out the windward side. Drifting is much worse in an open yard exposed to wind than in a sheltered place with trees or shrubs in it.

We have tried changing places with hives that had more than their share, putting weak ones in their place. This will equalize some, for many of these bees will go back to the same location at their next flight; but there is some chance of losing queens by this procedure. Another thing to be remembered is to air out the bee-cellar thoroughly if possible, the night before taking the bees out. If this is done the bees will be much quieter, and will not notice the fresh air that comes in when the door is opened to enter the cellar as they would if the air in the cellar were warm or stagnant.

We do not use any smoke in the cellar in taking bees out, but always have a good smoker handy outside, to make them behave until the hives are fixed as wanted.

Dunlap, Iowa.

THE SEASON OF 1914 IN THE CENTER OF ENGLAND

BY W. J. WOOLLEY

Being a touring expert in the southern part of Worcestershire I send you my short report of 1914.

This is a noted fruit and vegetable growing district bordering on the outside with farming. The honey crop was the best for about twelve years. Although the Isle-of-Wight disease did some little damage the district still contains a lot of strong healthy colonies, and the bees paid well.

The average in the fruit-growing district was 30 lbs. of honey. Some of the members of my association who live in the vale at the foot of the hills had an average of 75 to 80 lbs. each for which they received the price of 9d per lb., extracted, and 10d per section wholesale.

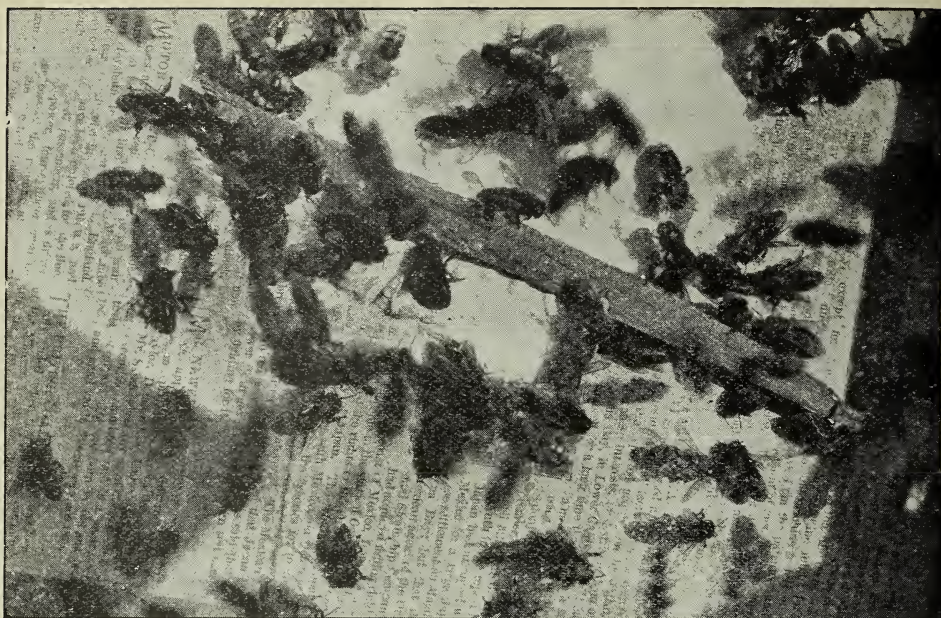
The bees were busy from April till August, when the drouth affected the yield from the clover. Colonies went into winter well provided with plenty of well-ripened food, and look promising to come out strong in the spring. The bees swarmed very little

this year. Out of my apiary of 28 stocks I had only three swarms, and I could not get enough to supply orders for swarms.

At one place where I called on my autumn tour the man had not taken his crop of honey off, and he asked me to do it for him. He had put only one rack of sections on, and had been too busy to attend to them, so he said. Well, when I got to the hive I had hard work to get the roof off. What a sight! The owner had put only one small quilt over the rack of sections, and the bees had found a way, after finishing the rack of sections, into the empty space above, and had built and sealed with honey the whole of the space under the roof of the hive. They had sealed the roof down with honey. The bees had stored over 30 lbs. above the rack of sections.

He wished, when he saw the sight, that he had looked after them a little better, and so had a far greater crop of honey.

Evesham, Worcestershire, Eng., Dec., '14.



Bees working on flour during a dearth of natural pollen in the spring.

From Byron S. Hastings, Brooksville, Ind.

STRAIGHT AS A BEE-LINE; ECCENTRICITIES OF BEE-FLIGHTS

BY GEORGE H. REA

The cover picture of *GLEANINGS* for December 15th reminds me of a visit to this yard late last summer. It was during buckwheat bloom, about the middle of the afternoon of a hot day. We had driven out in the auto truck to feed (this is the yard where we fed the Porto Rican honey, see page 4, Jan. 1).

Very little nectar was to be had in the field excepting from a small field of buckwheat on the north side of the yard, but it was the wrong time of day for that; so that you can imagine my astonishment when entering the yard to observe the bees lining off toward this buckwheat-field by the thousands.

Now look at that picture (cover, Jan. 1). The north is at your left. Observe that there is a fifty-foot embankment to the south, or right-hand side, covered with trees. The west side, or the front of the picture, is open ground, as is also the embankment on this side of the yard.

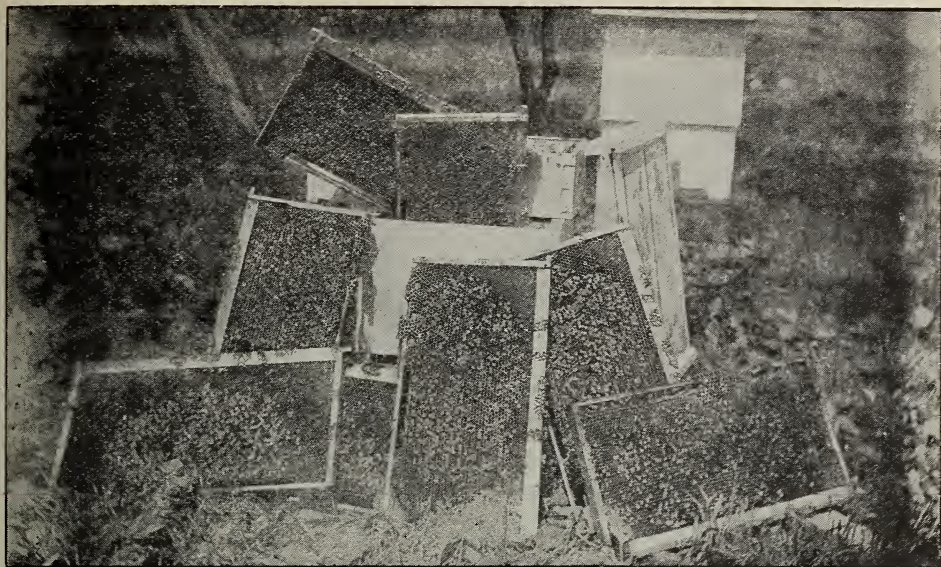
I told the boys that while they fed the bees I would determine, if possible, where the supposed honey-flow was coming from. I intended following the bees; but before so doing several of the incoming workers were relieved of their burden, and in every case it was found to be water, pure and simple.

I was puzzled to know why they should line off toward cultivated fields where no water was in sight, when a copious stream flowed in the ravine at the base of that bank not more than one hundred feet away.

To my astonishment this is what I found: The flight was in a stream out over the fence on the north side and into the field to a point a little beyond a small tree, which shows in the margin of the picture. There they turned sharply to the east, continued over the corn-field in the background, and out over a plowed field nearly a quarter of a mile beyond, keeping parallel with the wooded ravine. Here the ravine spreads out, the high banks diminish, and the stream is skirted with low-growing trees. Here the flight of the bees rose almost beyond vision, and turned again abruptly to the right, or south, and continued to turn out over the shrubbery, and flew directly back down the stream on the opposite side.

They were found watering in a swampy place at a point almost directly opposite the apiary, most of them not five hundred feet from where they started. Why did these bees fly fully half a mile to get water so close to their hives?

Three reasons, I think; namely, protec-



The result of neglect. The bees died because disease was allowed to get a start.

tion which the trees afforded from the prevailing southwestern winds; to avoid either flying over those high trees, which was necessary if they went direct; or lifting straight up that high bank if they flew west a little to the opening. But then, talk about "as straight as a bee-line." Say! I have lined my bees at home among the Pennsylvania hills for a distance of seven miles, and

descried many a crooked path thereby; but this is the most notable case that has come under my personal observation. It is conclusive proof that bees do take advantage of the contour of the country, and natural objects, such as trees, buildings, fences, etc., in order to follow the lines of least resistance to wind and gravity.

Medina, Ohio.

REFLECTIONS OF A BEGINNER

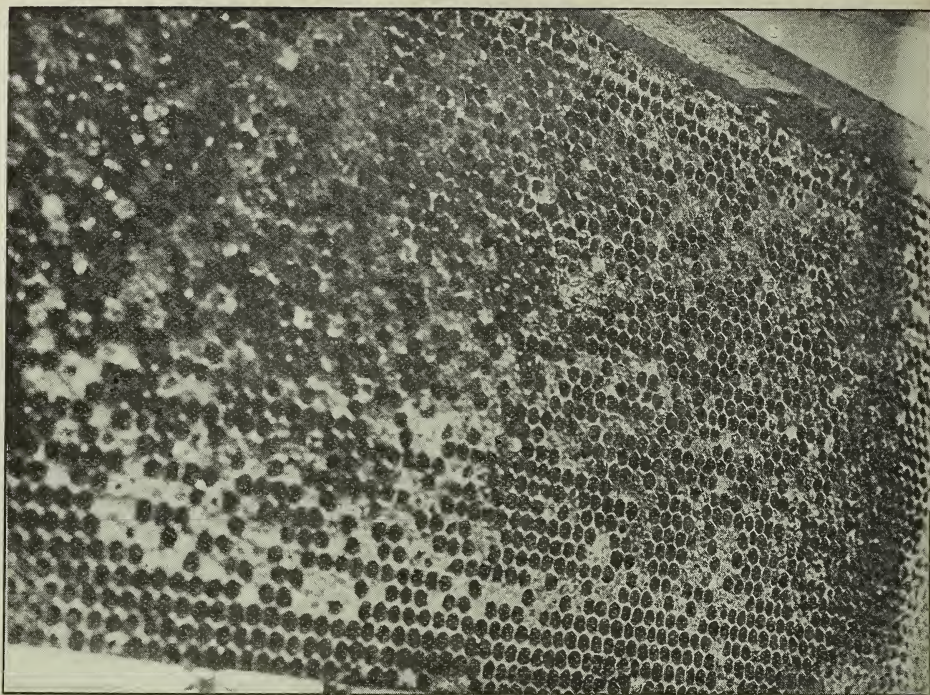
BY C. M. MYERS

A thorough knowledge of beekeeping at the start is not essential to the eventual success of the layman; but judging from my experience a thorough study of the advanced A B C and X Y Z of Bee Culture will save many brain-storms and heartaches for the average beginner.

All one winter I studied the A B C daily, and each day some new phase of the work became more apparent. When spring came, following a hard winter, I was anxious to get started early; but because of the heavy winter losses among the beekeepers all over the country I was unable to find any bees for sale until the first of June. At that time I purchased two strong colonies with half-filled supers. I brought these to my home in town, and placed them in the back lot. This was barren of trees of any kind, and the only shade the bees had came in the late afternoon from a board fence.

My venture seemed crowned with success when two full supers had been removed and new ones substituted; but my enthusiasm was taken down a notch or two a few weeks afterward, when, in searching for queen-cells to head off any inclination at swarming, I found that both my hives were infected with American foul brood in the most malignant form. The McEvoy treatment was given them at once, and they were in fine order by fall. That winter, however, they went out just after a continued warm spell in February. Upon examination I found my error in judgment regarding the amount of stores needed, as all the stores were exhausted.

Hardly before the time when bees are safe from spring dwindling, two more hives were bought at a sale held by an expert beeman. These were placed on the empty stands. This second year proved a failure



A close view of a comb containing foul brood, showing the sunken and irregular cappings, scattered patches of brood, etc.

as far as surplus is concerned; but from these two stands an artificial increase of six was made, and, with the purchase of four more hives, the second year closed with twelve good colonies.

The winter following was a severe one, and a total loss of four occurred, two of which came because of leaky lids. This caused me to fit all my colonies the following summer with metal covers. By careful methods I was able to get good surplus last summer; but not one of the eight old stands produced as much as a prime swarm which was captured the first week in June. When winter came I had a total of fourteen colonies. The additional six were natural swarms, five of which were captured, and one was my own because I overlooked a queen-cell.

Few are the men and women engaged in the hazards of business who do not look forward to the time when they shall have a country home of their own, let it be large or small. There they hope plenty of all of life's necessities may be assured regardless of financial conditions.

That has been my sole ambition. While yet a young man, not yet out of my twenties, I hope to return to the soil whence my ancestry came. While a bank account is a

thing much to be desired, thousands of young men and women, married or single, find things seriously different from what they anticipate when they reach the end of the business world. The game requires much and gives back little in return, and absolutely nothing when old age and infirmities come with awful suddenness. Discharge from the service of the employer sometimes brings nothing to face but the infirmity when the small savings of fitful frugal periods are gone.

Therein lies the reason why so many acquire knowledge of bee culture, poultry-keeping, and gardening—that they may succeed when their backs are turned on the fallacies of the cities, and that they may return to health, happiness, and a bank account in the country.

Two years ago I had the pleasant and profitable experience of assisting the state inspector of apiaries in this section—an experience which has proved to be more valuable to me than I had ever expected. There can be no reason why any one who owns bees or keeps them in any way, modern or crude, should not be well informed on the subject of foul brood. Every farm paper of any consequence, and all of the bee-journals, have articles of this kind, and

the government has on hand at all times a supply of bulletins relating to this and all other subjects of importance.

I am sending two pictures of brood-

frames in an apiary of five colonies, which died of the disease during the winter previous to our inspection.

Winchester, Ind.

THE WATER TREATMENT FOR GETTING BEES OFF DISEASED COMBS

BY F. R. M'COY

Read before the annual meeting of the Idaho Honey-producers' Association

As soon as foul brood is discovered in any colony of ordinary strength, treat the diseased colony at once by placing it in a tank containing a few inches of water. This tank must be perfectly level, and the water deep enough to keep the bees from escaping from the infected hive.

Take a clean hive, with full sheets of foundation. Place a wire cloth upon the top and put the whole thing upon the top of the diseased hive in such a manner that the bees can readily work up into the clean hive. Finally, put weights on top of the upper hive to keep the lower hive from floating.

Commence pouring water into the tank in

a steady stream, small enough so that it will take about twenty minutes for the water to get high enough to force all bees from the diseased lower hive into the clean upper one. Let the water reach the top of the lower hive, and no higher. Great care must be taken not to pour in so much as to raise the level above the joint between the lower and upper hive.

The bees are now off the old combs, and absolutely clean and free from any disease. Have a bottom-board ready on the old location where the diseased colony stood, and set the clean hive of bees on top. Take the diseased colony or the old hive, and destroy it totally by fire.

THE VALUE OF THE ADVERTISING DEMONSTRATION

BY J. L. GRAFF

There was read at the late convention of beekeepers in Chicago a letter in which the writer ventured the suggestion that if each beekeeper would contribute half a pound of honey or its price toward raising a fund to carry on a propaganda demonstrating the varied uses of honey in the average home a great deal could be accomplished in increasing the demand.

I have often wondered why honey itself is not used to tickle the palates of food consumers. I notice at the big shows, like the dairy and live-stock shows, other products are demonstrated in an effective way. Three hundred thousand people attend the Chicago international live-stock show annually. Butter on crackers advertises the butter. Butter is put into thousands of bags of pop-corn for the same purpose. The manufacturers

of ketchup make extensive use of the oyster patty to tempt people to try the condiment.

If the results that encourage manufacturers to stick to such a practice are satisfactory for butter and other products, why wouldn't a small spread of honey on a cracker turn people to honey?

Recently I went into a grocery and discovered the proprietor standing on a high ladder. He had a big poster in his hands making ready to tack it up. When he turned it right side out I read the advertisement of Airline honey. It was displayed in a taking way; the bill in itself was attractive, and there was a good catch-line that led the reader to read on.

Honey can be effectively advertised and demonstrated. The thing to do is to do it.

Chicago, Ill.

BEE CULTURE TAUGHT AT SCHOOLS

BY W. C. HICKS

Inclosed is a picture of a school exhibit at a tri-county fair recently held in Cass Lake. This is of interest, as it shows that beekeeping is taught in our schools. This is a new country, just changing from the lumber industry to the agricultural. It

gives promise of being good bee territory. Our honey-plants are white and alsike clover, wild raspberry, and basswood, with acres and acres of pollen-bearing shrubs that bloom in early spring. Sweet clover is being introduced.

Cass Lake, Minn.



At the age of 79 Mr. Sherk does all the work in his apiary.

HALF A CENTURY A BEEKEEPER

BY ETHEL LEARN

My grandfather, J. J. Sherk, who is now in his eightieth year, has kept bees since he was eighteen. His sister gave him his first colony, which was in a box hive; but that winter he lost it. The next summer his father gave him another if he would give him the honey. This was in an old-fashioned straw hive which he made himself. He used these for a number of years until he heard of the "Ott" hive; but he did not have success with that. He then tried the "Jones" hive, which he liked somewhat better, but that winter he lost all he had—fifty colonies.

He then bought another colony, for which he paid \$9.00. A friend of his advised him to try the Langstroth hive. This he liked, and is still using.

He has 61 colonies now, and does all the work for them himself. He extracts his own honey with an automatic extractor, which is much better than straining it through a cloth, which he did when he first started. He has had better success these last few years than he ever had, but last year there was little honey in this section. Vineland, Ont.

THE PREVENTION OF SWARMING

A Sequel to the Law of Swarming Formulated

BY WILLIAM BEUCUS

There was a time when the tipping of tables and the writing of the planchette board were regarded as due to the actions of spirits. It satisfied the craving for the marvelous and the startling. But investigators proved that these phenomena are due to involuntary muscular contraction. Nevertheless there are still to be found those who insist that spirits are the cause.

So it is with swarming. The desire for the occult has caused many of us to look with disfavor upon any explanation which shows that swarming is due to simple causes.

We do not like to think of the hard unpoetic work by which swarming may be prevented, and hope to discover some simple sleight-of-hand method by which swarming shall be easily and quickly controlled. To show that the tipping of the tables, writing of planchette boards, and kindred phenomena, as well as the swarming of bees, are due to the action of well-known causes is a cruel disappointment. Nevertheless the thirst for truth compels us to reject the poetic and accept the prosaic.

Some time ago an intelligent beekeeper

informed me that a certain beeman had discovered how to make some slight change in the brood-chamber by which swarming was entirely prevented. This man, I was told, refused to divulge his secret because the crops of honey would be so enormously increased that ruin would overtake the beekeeper. That man died, and his great secret is buried with him. Let us be thankful that he saved the beekeepers from ruin or himself from exposure.

In one of his articles Dr. Miller, after half a century among the bees, says in substance: If any one expects to be told of some easy way to prevent swarming, let him stop right there.

In the issue for Aug. 1, 1911, appeared an article by the writer of the present paper, in which the law of swarming was formulated as follows: Swarming among bees is a migratory habit which operates under conditions which render difficult or impossible the performance of their respective functions by the inmates of the hive. With the light of this definition as our guide, let us see what can be done to prevent swarming.

There are five conditions in the presence of which bees swarm: 1. Uncomfortable hive; 2. Starvation; 3. Insufficient numbers; 4. Poor or failing queen; 5. Crowding.

Let us consider these conditions in the order given. 1. Uncomfortable hive. A swarm placed in a dark-colored hive, in the boiling hot sun, without a shade-board, is almost sure to desert. Often it will also desert if placed in a hive with a small entrance. A swarm hived on starters is pretty sure to abscond; hived on full sheets it is less likely to abscond; and hived on a set of sweet-smelling full combs they never abscond. To prevent that kind of swarming which we call absconding, place the hive in the shade because bees cannot work so well if oppressed by heat. Make the entrance large enough, because bees cannot work if they cannot breathe freely. Do not give starters, because it compels the bees to do some hard preliminary work before beginning with the more important work of house-keeping. Do not give full sheets if it can be avoided, because, although the preliminary work is less than with starters, it is still considerable, and stands in the way of taking up at once the real work of life. If you can do so, give the swarm a full set of combs because it removes every obstruction to immediate beginning of the important work of life. To summarize, make it easy for the bees to begin rearing brood and storing honey. These are the two kinds of

labor for which comb-building is merely a painful preliminary. Relieve the bees of that, and they will be contented.

2. Starvation. Bees cannot live without food, nor can they rear offspring if they cannot live. Realizing this they seek a more favorable location. To prevent this, see that the bees have plenty of food at all times of the year.

3. Insufficient numbers. A handful of poorly wintered bees will usually begin brood-rearing, just as will a colony weakened through drifting when set out. It is an inexorable law that the temperature of the center of the cluster must be high in order to mature brood. A handful of bees cannot maintain that temperature, therefore the work of life cannot be carried on. Keep all colonies strong in summer, fall, winter, and spring, and you will not be troubled with this kind of swarming.

4. Poor or failing queen. In the evolution of the bee, those colonies headed by the most prolific queens had the best chance of survival. Prolificness is common to the queens of honey-bees, and the presence of a vast multitude of bees, as a normal condition, has been registered in the brain of the bee. So when a queen fails to lay many eggs, the bees instinctively feel that something is wrong with their queen, that the future of the colony is threatened, and so they begin preparations for rearing a new mother. But for thousands of years the building of queen-cells has been inseparably connected with swarming. Hence a swarm emerges as soon as the first cell is sealed, or even with the emergence of the first queen. To prevent this, keep track of the age of the queens and of their egg-laying. Do not allow queens to get older than two years, and remove all inferior queens. Young prolific queens make it possible for bees to carry on the function of life, raise an abundance of brood, and secure an abundance of food. To prove that a good deal of swarming results from superseding, remove several queens this year after the honey-flow is over, and you will find that, in from eleven to fourteen days, swarms will issue from some of those colonies while the remainder of the yard will be quiet.

5. Crowding. We come now to what I call normal swarming. I wish to state, in passing, that part of the swarming commonly attributed to crowding is due to superseding, for queens are replaced by the bees in spring, summer, and fall. If swarming is due to crowding, then of course more room must be given. By so doing we are simply making it easy for the bees to carry on their lifework, and this is all they desire.

Giving room to colonies run for extracted

honey is easily accomplished. Brood may be lifted into upper stories, and empty combs given; but it is not so easy to give room to colonies run for comb honey without sacrificing part of the crop. Shaking the strongest colonies off and allowing them to run in on to full sets of combs, at the beginning of the honey-flow, usually settles those colonies for the season. But if the honey-flow is long and the queen prolific, these colonies may need attention.

It is not at all impossible, however, that an examination every week or ten days will reveal no queen-cells started, in which case there is nothing to do. If queen-cups are found with eggs in them, these may be destroyed and swarming may not take place: but if large larvæ are found in cells it is necessary to take away all brood and give drawn combs in place.

If queen-cells are started, and eggs laid in them, and if they are immediately destroyed by the beekeeper, the bees still store honey. But if the cells become well advanced, the idea of swarming spreads and strengthens—motion gets started in the new direction, with how much force many a beekeeper can testify.

The problem then is psychological. We are first to satisfy the craving of the bees to rear brood, giving plenty of room for the purpose; and as soon as the honey-flow begins, we are to satisfy the craving for storing honey by giving plenty of room above the brood-chamber.

And now attention must be called to

something which I do not remember to have seen in print. In their wild state, bees do not labor hard to store honey. They labor to raise bees. The storing of honey is not the object; that is merely an incident. Raising brood is the real object. But man has reversed this. He has made the storing of honey his object, and so it happens that usually swarming comes from lack of room for the queen. The perpetuation of the species is the great activity of life.

To summarize briefly: To prevent swarming, see that your bees are comfortably housed, have plenty of feed at all times, are always strong in numbers, have a good queen, and, in the honey-flow, plenty of room for storing honey and rearing brood, and you will not be troubled much with swarming. To accomplish this requires a good deal of work, but it is the price which must be paid.

Since writing the above, I came across a peculiar verification of the law of swarming as I have formulated it. Dr. Miller tells us that he hived a swarm of bees on a set of drone combs to determine what would happen. The bees promptly swarmed out. Why? Because a condition stood in the way of the performance of the predominant bee function—the rearing of worker brood. It is noticeable that a swarm invariably prepares for the rearing of worker brood, and never builds drone comb until that has been attended to. This condition obviously comes under the heading, “uncomfortable hive.”

DESTROYING ANTS WITH CARBON BISULPHIDE

BY ARTHUR E. AULT

On page 70, Jan. 15, E. S. Miles, of Dunlap, Iowa, tells of his partial success in destroying ants by the use of axle grease and kerosene and a plentiful use of fire.

In my experience in keeping bees in Florida I have suffered very little loss from ants.

Two years ago, in one of my apiaries a small red ant was very plentiful. These build nests in the ground, some of the nests being several feet in diameter. They are fierce biters, and it is very annoying to work by one of their nests. The first I observed of them attacking the bees was when I found a weak colony with the comb half covered with the ants. The bees seemed greatly disturbed, and on my next visit the ants were the only occupants of the hive.

Later I formed a strong nucleus in another part of the apiary, when within an

hour the ants covered the combs and the bees deserted the hive. I then secured a pint of carbon bisulphide for which I paid 50 cents. With a hoe I dug into the ant-nest until I found the ant eggs, when I poured in a tablespoonful or more of the liquid, closing the hole and covering the nest with a hive-cover to confine the gas, as bisulphide of carbon is very volatile.

Returning to this apiary after about a week I found only a few of the ants, which I proceeded to treat as before. That was two years ago; and though I sometimes see a few ants about the apiary they are not sufficiently numerous to cause any trouble.

As will be seen, this method of destroying ants can be used only where the ant-nests can be located; but in such cases it is very effective.

Bradentown, Fla.

THE ALEXANDER METHOD ADJUSTED TO A CLOVER LOCALITY

BY IONA FOWLS

Since J. G. Brown's defense of the Alexander method for the West, p. 27, Jan. 1, I have watched in vain for an article from a clover locality bearing upon the subject. It just now happens that our honey-flow is from white clover and alsike. Also "we really keep bees and are kept by them." Therefore I shall venture to explain just how we have adjusted the Alexander plan to our locality so that we have been enabled, during the past three years, to systematize and lighten our work, and at the same time to increase our crop materially.



THAT BEEKEEPER CONVENTION.

The members of the "convention," as they stand on and before Mr. Johnson's porch. First on the left, Mr. Wilder; next to him, Mr. Raub, the man who made such a success with an incubator after he was 80 years old; next, Mr. Clute. Last, on the right, Mr. Ratrav, from Michigan. Mr. Redout is the central figure in the background. See page 251.

Perhaps I should state at the beginning that we believe it a great mistake to endeavor to prevent swarming. If you will allow the analogy, it seems to me a good teacher recognizes the value of activity in her pupils, and seeks not to prevent it but rather to guide it so that it may work out to their advantage and not to their detriment. Our plan is quite similar.

At the opening of the season we watch very carefully for the first indications of swarming, overhauling each apiary once a

week, and giving every colony plenty of room. If queen-cells with eggs or very young larvæ are found, they are torn down. But whenever a more advanced stage is discovered we immediately put our system into operation.

The hive is moved to one side and replaced by one containing foundation or empty combs (preferably the latter). One of the central frames is then exchanged for a frame of brood with the queen but no queen-cells.

At this point occurs our first divergence from the Alexander plan. He advocated

putting the queenless colony right on top with nothing but the honey-board between. Now, if we should do that at this time of the season the chances are that the swarming tendency would very rapidly develop into a mania, with the result that we should lose the use of those bees just when we most needed them. Therefore, between the queenless swarm and the lower hive we place at least three shallow-depth supers of empty combs, or probably two, if full-depth supers are used. Should it so happen that we are obliged to use partly filled cases between the two swarms, no harm is done provided we leave plenty of room. However (and this is very important) the super

immediately below the old swarm must be entirely empty. The new swarm below now has so little brood and such an abundance of room, and they are so far removed from the nurse bees and cell-builders, that they completely give up the idea of swarming.

Here our method differs widely from Mr. Alexander's. He waited five days; and then if there were any cells with larvæ he separated the two swarms at once. If not, he left them for ten or eleven days before separating, and then one day later he gave

them a queen or ripe cell. Not only would this require rather close attention, but it would also necessitate opening the hive three or four different times. Our plan is simpler. We tear out the capped cells above, leaving all the embryo cells, even those nearly capped. The swarm may then be left for seven or eight days, feeling certain that no queen can hatch in the meantime. At the end of a week the upper story is moved to another location; and in case the stock is poor they are given a cell from a better strain. Otherwise we destroy all but one capped cell; but if time is pressing, even this may be neglected, for the bees themselves will attend to the matter.

For our locality we find this method more efficient than any we have ever tried. Of course we do not raise twice as much honey, but no doubt we increase our crop considerably, for the bees have been given no opportunity to loaf. Moreover, we have early in the season, in addition to the old queen, a young vigorous laying queen. In the original plan, queens had to be provided in some other way; but with our variation of the method we obtain the very best queens possible, for they are raised under

the natural-swarmling impulse. We find, too, that in running for extracted honey, as we do, the extra supers between the new and old swarms come in very nicely.

It should be noted that the plan is not wasteful. There is no loss of eggs, larvæ, or brood, since at the time the hive is moved to the new location there is nothing but capped brood in the hive. But, more important still, we are no longer worried by natural swarms issuing at some outyard when no one is there to attend to them; because, except for very unusual cases (supersedure, or a swarm with a virgin), we have no natural swarms, and consequently are able to leave an apiary for a week at a time right during the honey-flow. Thus by a plan that is neither complicated nor wasteful, we obtain with less work and anxiety better queens and more honey.

We claim no originality whatever for the plan. We have probably combined the methods of different writers. However, it may be of interest to some to learn how we have dispensed with the inconveniences of natural swarming, and at the same time have retained the advantages.

Oberlin, Ohio.

BEES AND FRUIT; TWO NEW TREATMENTS

BY JOHN W. LOVE

For many years it has been necessary to attack an ungrounded prejudice against honeybees held by fruitgrowers who believed that beekeeping was detrimental to horticulture; but now that the notion has practically disappeared, beekeepers and fruitgrowers together are realizing how closely connected are the interests of each other through the service rendered by the bees. One of the broadest discussions in this field has been furnished by Mrs. Susan M. Howard, who writes on the subject, "Honeybees as Pollinizers—a Valuable Adjunct to the Horticulturist," in *Apiarian Inspection Bulletin* No. 8 of the Massachusetts State Board of Agriculture (June, 1914).

Along this same line, but narrower and more scientific in treatment, is an investigation in the development of the apple from the flower, and the value of the honeybee as a fertilizing agent in a paper of the same name, written for *Better Fruit* by O. M. Osborne, and reprinted by The A. I. Root Company.

"To-day the honeybee is more and more considered an invaluable ally of the farmer," writes Mrs. Howard. "The orchardist

and small-fruit growers consider their colonies as a part of their equipment, and their use as such a factor in the success of horticulture as is cultivation, application of fertilizers, the growing of cover crops, pruning, spraying, and the like. To the farmer, especially if he be a fruit-grower, a honey crop may be regarded as secondary or as a by-product, while to the beekeeper it is a primary product; thus while the ultimate aims of the horticulturist and beekeeper may be different, yet they are interdependent."

On account of the uncertainty of service by accidental visits of bees, the forehanded fruitgrower now provides a sufficient number of colonies not far from his orchard, if not actually under the trees. Although bees will forage for honey a distance of six miles from the hive, if necessary, it is better to have them at close range, since they prefer short trips, and do not completely work a circle of six miles in radius.

Besides the nectar, bees are in search of pollen as a food. This is a highly nitrogenous substance supplying nitrogen and phosphorus—two elements needed to sustain any kind of life. To be sure, this

pollen is provided vastly to the excess of the actual needs of bees; but its seeming over-production may be explained on the ground of an effort on the part of the plants to insure pollination.

The search of the bees for food is the occasion of their inestimable service to the fruitgrower through their unconscious part in pollination. The process is entirely mechanical, and could be performed by human labor, and has been; yet the labor of the bees is not only far more effective but incomparably cheaper. Growers of cucumbers in Massachusetts greenhouses use colonies for this purpose alone.

Turning now to the fertilizing process itself, the botanist recognizes three varieties of sex distribution in flowers, viz., (1) Both sexes in one flower, as where the stamens (male), and pistils (female), are both present and complete; (2) Sexes separate in individual flowers, but both sexes on the same plant; (3) Sexes separate on individual flowers, which are borne on different plants—a further modification of the second class. Some plants, therefore, are only male; others are only female.

Since most of our fruits and vegetables involve a sexual process in the union of the pollen and germ of the egg, there must be some means of union, especially in the second and third classes of flowers, where the sexes are separated, either in individual flowers or in individual plants. Of all the insects furnishing this means, the bees are recognized as the most important, and should be provided by the grower of fruit.

The wind is effective in transferring pollen from blossom to blossom in those trees and plants having a fine and dry pollen, as, for example, the pines. Trees which are wind-pollinated are usually independent of insects; but among fruit and vegetables the pollen is usually heavy and sticky, and depends upon an insect, usually a honeybee, for its transference. Experiments show that little or no apple pollen drifts in the wind.

The honeybee seeking nectar far down

in the flower covers herself with pollen from the stamen, or male organ of the flower, and gets it against the pistil, or female organ of that or some other flower. Thus quite accidentally has the function of the bee been performed. In this vital operation the union of the pollen left on the pistil with the ovule within completes the process of fertilization and results in a perfect seed.

Many plants are sterile to their own pollen, and require pollen from another source. Furthermore, self-fertilization is found to tend to weaken the offspring, and, in contrast, crossing or cross-fertilization is found to result in greater strength and productivity. Moreover, flowers are generally constructed to favor cross-fertilization and to prevent perpetual self-pollination.

In mixing varieties of pollen, bees serve to create new crosses and to increase varieties.

One of the most practical points brought out both by Mrs. Howard and Prof. Osborne is the fact that the apple requires five independent fertilizations for complete results. If many ovules fail to fertilize, the apple will lack size or symmetry, or both. Thorough fertilization prevents the dropping of apples.

While the number of full-blooming trees in a cluster has much to do with drawing the attention of the bees, yet high color or fragrance do not always act similarly.

It has sometimes been contended that the honeybee damages the fruit by biting into the skin and sucking out the juice. It has been shown, however, that the jaws of the bees are so constructed that it is entirely impossible for them to bite into the skin of any kind of fruit; but when the skin has once been broken the bees have an opportunity. The jaws of the bee are smooth and rounding, and quite unfit to make an opening of any kind. Wasps and birds are guilty of making the opening in the first place, and fruitgrowers should not blame the bees for this damage.

The bulletins close with remarks on spraying during blossom time.

THE INCUBATOR IN QUEEN-REARING

BY DR. BRUENNICH

The view of J. E. Hand concerning the use of the incubator as a queen-hatcher has my full approval. Many years ago I gave to the nuclei, not cells, but queens hatched in an incubator, and I find the advantages considerable. After my experiences the losses with young queens are not nearly so

great as the losses with cells. When a new nucleus is formed it is with my methods extremely rare that a young queen is killed, be she one, two, or more days old. The most important requirement is that the bees of the nucleus be young. For this purpose I take the bees of the super, and am sure

to have success. A freshly formed nucleus with such bees will accept every queen. It is somewhat more difficult to give an unfertile queen to a dequeened nucleus; and I agree fully with Mr. Hand, that it is not advisable to give another queen before three days elapse after dequeening. In this case I give the young queen in a wire tube, but do not let the bees come to the candy before one or two days. I give candy enough so that the bees have at least 24 hours for eating it, so I have only insignificant losses. The losses come later when the young queen flies out, and if there are but few traces of robbery. In such a case the queen will be balled and stung. But that is exactly the same if I have given a cell or a young queen.

A great advantage of this method with hatched queens is that the young queen can be minutely examined before giving it to a nucleus. A queen which has not the needed characteristics of the desired race is eliminated, and so is, of course, each one which is minus a claw or has a deficient wing. Furthermore, I mark each queen before giving her to a nucleus. Marking is much easier with a freshly hatched queen than with a fertile one, not to speak of the greater nervousness in the latter case. This is very important for me because it gives the possibility (when marking the queens differently) of making interesting observations.

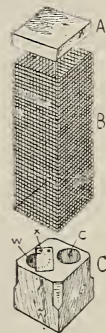
As to the temperature of the incubator, I have, as a rule, 90 degrees F.; but it is necessary that the cells be just the same height as the thermometer, because (at least with my incubator) the higher up the thermometer, the higher the temperature.

For each cell I use a little cage consisting of three parts—the wooden cover A, where the cell is fixed with wax, the square wire

tube B and the foot C. The latter is of wood and has two holes which have been well waxed, one for candy, the other for water (w). The water-hole is partly covered by a piece of foundation to avoid the drowning of the queen. In the incubator I put some wet blotting-paper to secure the necessary humidity of the atmosphere. If I have many cells I fill the cage with bees, which may easily be made on an alighting-board, having in one hand A and B (with the cell); in the other, C, on going with the under edge of the wire tube along the board, so catching the bees. In cages with bees I can keep a queen for several days; but it is better not to let her stay longer than one day in the warmth of the incubator, but to put the cage in a dark place at about 60 to 70 degrees F.

The late Dr. Kramer was much opposed to this method of letting the queens hatch in the forbidding, solitary place of a dead incubator. He thought that the sympathy of the surrounding bees in the hive had an influence on the strength and qualities of the young queen. This view is very romantic and poetic, and ought certainly to be adopted with the eggs of hens and geese; but I must confess that I, for my part, have never seen any bad effect on my queens. Most of them show the fine qualities of their parents, and often become four years old, but not older, according to my observations, till to-day. There are beemen, however, who pretend to have had a queen which lived six years. Have any of the readers ever seen a queen older than four years?

Zug, Switzerland.



SOME COMMENTS ON RECENT DISCUSSIONS

BY J. A. BOWEN

So far as I can ascertain the season of 1914 has been the worst ever known in this region, due, I believe, to the cold summer. May and June were like winter. The bees were getting just enough nectar to keep body and soul together. I am wondering whether the season had any thing to do with such a general balling of young queens. In looking for eggs on the thirteenth day I would find the queen in a frantic ball of bees. Some I rescued, many were killed. This freakishness became less evident as the season advanced.

Another feature that caused lots of annoyance was when I took a frame of brood from the center and replaced it with drawn comb or full sheets of foundation. In three or four days, instead of being filled with eggs, as at other seasons, it acted as a division-board. The bees filled it with honey, and on the queenless side started queen-cells. In several instances queen-cells were found in the supers, showing the bees had carried eggs through the excluder.

Many reasons are given why so many young queens fail to return home after

making their nuptial flight. I have tried every plan suggested except hoisting flags of different colors, but all to no purpose. My hives are in rows of pairs, six feet between each pair, and nine feet between the rows. Sometimes from a batch of cells I get nearly all of them mated; at other times not half. The past summer I had three eight-frame hives divided into three parts, each part taking two frames, with entrances facing east, west, and north. Sometimes I could get nine queens from nine cells mated; at other times not more than four or five, all raised, apparently, under the same conditions. On page 324 the editor says that during April at Pompano 90 per cent of the queens are killed by dragon-flies. We have millions of such flies here. The loss of queens may be from the same cause.

On page 345 E. R. Root describes the Marchant scheme for transferring from box hives. Our plan is as follows: Approach the box hive, give it a little smoke; tear a piece off the top, the larger the better; then place the eight or ten frame empty super on top and smoke the bees at the bottom. In a minute or so, up comes the queen. As soon as she is safely on the sides with the mass of bees, lift off the super, put an excluder over the old box, replace the super, and fill it with combs.

That's all. Easy, isn't it? no sawing nor waiting days for the bees to go up when they are ready. They go up when I am ready. In twenty-one days remove the box.

One more proof to that of Mr. Freeborn,

page 723, that bees do discriminate against black. On one occasion a number of angry bees followed me to the house. As I neared the back door, two cats, one black and the other mostly white, lay sleeping on the steps. While I was some feet away the black cat jumped up and made a lightning leap for cover as though in a fit, while the white one just opened its eyes and yawned.

One of the best drinking arrangements for bees I know of is a trough or iron wash-tub. Put in a little sand or soil; throw in a few roots or slips of parrot's feather. In a short time one has a dense growth of one of the daintiest water-plants, and at the same time it gives the bees a chance to get a drink without drowning.

That rain-barrel cistern for the beeyard, page 909, may be ideal for Alabama; but for California it is useless. We don't look for rain from the end of March till the end of October.

A. C. Miller's wire bee-veil, page 810, works well in violent wind storms, of which we get many during the honey-flow; but with the temperature at 110 for weeks I can better endure the stings than the weight of the veil. Coming in from the apiary one day with a severe headache, due to the heavy veil, Mrs. Bowen's mother, a clever woman, took a piece of cheese-cloth, put in a black net in front for the eyes, and round the whole veil sewed a light spring wire about on a line with the lips. I never wore any thing more convenient and sting-proof.

Dixon, Cal.

AN OUTLINE OF HONEY SUCCESS

BY FRED LEININGER

The question is often asked by beginners, "How shall I produce a honey crop—can I make more money on extracted than on comb?" It is not a question to be answered offhand. A number of things must be taken into consideration, and then it will generally be left to the beekeeper to decide for himself.

The fact that there are experienced and successful beekeepers producing extracted honey is pretty clear proof that they find extracted more profitable than comb; but there are also experienced and successful beekeepers who produce only comb. Just as clearly they deem comb more profitable for them.

It may be well to mention some of the items that are factors in the case, other things being equal. Comb honey has a preference because it brings a higher price

—perhaps a half more. On the other hand, it is generally believed that a half more of extracted than comb can be produced, though some say this difference is not so great. The location of the market has something to do with this, since there are localities where a pound of extracted brings nearly if not quite as much as a pound of comb honey. In some regions the nectar-flow is of short duration, but comes in a flood while it lasts; in others the flow is light but long continued. The former is favorable for comb, the latter for extracted.

The beekeeper must to some extent cater to the wishes of his customers. Where the harvest is mostly of dark honey of strong flavor, the preference is for extracted honey. Such honey may be sold for baking purposes while lighter honey is desirable for sections. It requires more skill to

produce comb honey, and more labor in the apiary during harvest. The swarming problem is vastly more troublesome with comb than with extracted honey.

Four essential factors enter into the securing of a crop of honey. First, a sufficient amount of healthy and well-nourished nectar-secreting plants within easy range of the apiary. Second, weather conditions favorable to nectar secretion and bee-flight. Third, a large number of workers in excess of those needed for the work

of the colony. Fourth, colony conditions making the storing instinct dominant.

Every operation of the season should be directed toward securing the greatest possible number of vigorous workers at the proper time.

Let me say that, if the beekeeper follows these simple rules, he will secure a crop of honey which will help to make the old world happier and sweeter.

Fort Jennings, Ohio.

SHERLOCK HOLMES ON A BEE-TRAIL

BY THE AMATEUR

The beekeeper who has never indulged in the pastime of hunting bees has certainly missed one of the most delightful of all outdoor sports. Interest is always keyed up to the highest pitch. There is always the possibility that the bees are in the next tree beyond. When the bee-hunter gets on a "hot trail" darkness alone will cause him to give up the quest.

If the farmer who doesn't feel like going down into his pocket to pay for a few colonies would just go into the woods, hunt them in trees, and get some beeman to help him put them into modern hives, the experience would go a long way toward making his beekeeping a success.

There is no finer outing for a boy than a bee-hunt. If a lad can be encouraged to go into the woods and hunt for himself a colony of bees the persistence and self-reliance which prompt him to follow the hunt to a successful conclusion will go a long way toward making him successful in the care and management of the colony, and, perhaps, will be the first stone on which will be built a future occupation.

Some one may say that it is impossible to find wild bees in his locality. It is very doubtful if there is a square mile of timber, either virgin or cut-over lands, where forest fires have not run recently, that has not one or more bee-trees.

If the bee-hunter can find where bees have been watering on fresh water, and notice their course from there, it should be comparatively easy to find the tree. Still it was under just such circumstances that "Pennsylvania Jake" had his hardest luck.

Not so long ago I became greatly interested in bees and every thing pertaining to them after I had been presented a bee-book, "Langstroth on the Hive and Honeybee"—one that was read and followed by my grandfather. This led to my reading all I

could find on bees. From reading the books I went into the woods, and, with no previous experience, found sixteen bee-trees one summer, and did a boy's work in a lumber-camp besides.

Toward the close of summer, one evening we had word that the railroad could furnish no cars the following day, so that meant "a day in the straw." Pennsylvania Jake came to my door and said, "By gosh, dogs! what are you going to do to-morrow?" Then he told me of a hybrid "bee" that was located about two miles up in the timber somewhere, but that he had been unable to find it, though he had been trying every "day off" all summer, and the year before, too. It was watering on fresh water, and surely it didn't go far; but he said he was sure he had examined every tree for a mile and a half in the direction they flew.

The reader may be sure I speedily consented to go along, for Pennsylvania Jake was the most famous bee-hunter of that locality. He had found unknown scores of bee-trees. A bee-tree he couldn't find was some tree!

In my dreams that night I could see bee-trees everywhere. The night was far too long, but morning came at last. We had breakfast, stuck a lunch in our pockets, and were off. I carried a small box with a hinged cover. In this I placed about a pound of honey. I also had about an ounce of aniseed oil, which I had been told was very good to use in bee-hunting.

Arriving at the small fresh-water spring where the bees had been watering so long, behold, the first bee of the morning came also.

It might be well to state that the spring was located at the edge of the large tract of timber which had been recently slashed and the bark peeled, leaving the hard wood alone standing. This adjoined on an east-and-west

line a very large tract that had been cut over years before. North of the line was the old timber tract cut over at a time when hard wood was almost valueless. Consequently there was a very heavy growth on the old timber tract right down to the spring, while the underbrush had grown up thirty feet high.

The first bee arose and started straight down the edge of the old tract, but on the side recently cut, in a westerly direction. There was an old timber road cut on the edge of the slashing, running parallel with the line, and the bee flew about six feet above the ground along this road. We could see her for an eighth of a mile. We sat down till a few bees came and went. All went in the same direction till about a dozen bees had come and gone. One bee seemed uncertain which way to go, and at last went in the opposite direction. "A mighty good course," said Jake. "Let's go."

Now, I had been thinking mighty rapidly for a boy, and concluded that this bee-tree was not where it seemed to be or Jake would have had it long ago. I noticed that when the bee going in the opposite direction got about six rods away, or just past the heavy timber, it swung around in a northerly course.

"Which way?" I asked.

He looked at me in surprise. "Why, the way the bees are going, of course."

It was then that I explained to him that it was my conviction that the bees were northwest of us. There was a tract of very heavy timber near the spring; and the underbrush being so heavy the bees preferred to fly around the timber to flying over it

when heavily loaded. "I understand that," said Jake; "but them pesky hybrids never go out of their way that far, and you kin hev all the bees you find on that side uv the woods."

Jake hesitated, then said, "Go ahead and try it."

I went back on the line to the spring and waited for another bee to start on the opposite line. I followed it back, saw it curve around the timber, and went right after it. After following through an opening on the east line of the old tract for about a quarter of a mile I came to quite an open place in the timber. Then, looking up, I saw a bee fly through just above my head in a westerly course and almost parallel to the strong line from the spring. I followed till I imagined I must be about forty rods west of the spring and eighty north. Here I began to examine every tree carefully. The underbrush hindered me greatly; but I would look for a small open spot in the timber and look until I saw a bee.

Finally I noticed a loaded bee make a slow half-circle and disappear in the underbrush. I rushed after her, and, pulling back a small birch-tree, saw them going into the body of a big chestnut-tree from both sides in a perfect stream just about thirty feet from the ground. I let out a yell that brought Jake. After looking at them for a while he said, "By gosh, dogs! that's the biggest fool bee I ever saw. They are yours."

That was our first bee-hunt together, but it was by no means our last. I went home happy to think I had beaten one of the most famous bee-hunters in that part of the country.

THE GRAND OLD MAN OF BEEDOM

BY GRACE ALLEN

Four score and more the years have passed, and left him with his bees,
With wonder-working sunlight on the wonder-laden trees;

And life to him has meant not crowds, nor hurry of the town,

But space to see the sky a bit and watch the sun go down,

And time to pause in clover-fields when bees are flashing by,
And will to work, and soul to laugh. (He hath a merry eye!)

Right sturdily and heartily he works with bees and pen,
And through it all he loves his God and all his fellow-men.

Who is this genial man, you ask, of honest-hearted fame,

Whom all the bee-folk of the nation speak about by name,

Who lives in large simplicity of worship, work, and joy?

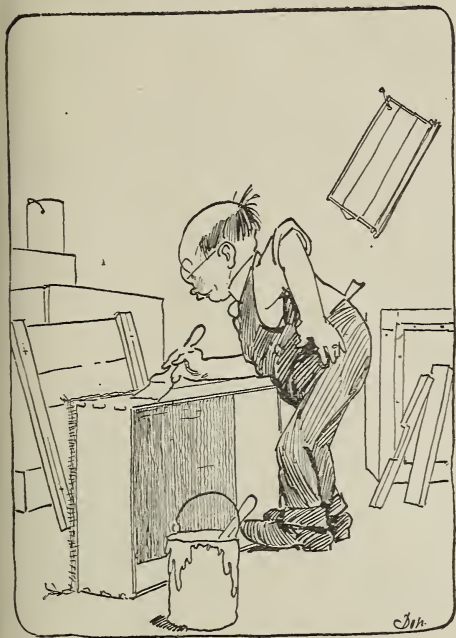
He's Dr. C. C. Miller, of Marengo, Illinois!

The Grand Old Man of Beedom! He's the Grand Old Man of Beedom!

His life is a happy harmony of worship, work, and joy,

With fun and fame and freedom—he's the Grand Old Man of Beedom,
Our Doctor C. C. Miller, of Marengo, Illinois!

Heads of Grain from Different Fields



The Backlot Buzzer

These city-bred bees soon learn to discriminate. They know there is no nectar in the flowers on a lady's hat, but the grocer says they'd work the combination on his cash-register if there were any honey in it.

Feeding Honey Candied in the Combs

I have a lot of honey sugaring in my brood-comb. What can I do about it? I certainly hate to out the comb out and throw it all away. Last fall we had a heavy honey-flow in October from what we call frostweed. It is this honey that is mainly turning to sugar. I have several hives with full combs from dead colonies. I wanted to keep these for feeding purposes in the spring. It is all turning to sugar.

Another thing, several colonies have all died, and others are weak. What is the trouble? It is not dysentery. They just gradually die out during winter, and leave hives of honey.

Winston-Salem, N. C.

JAMES NIFONG.

[The frostweed to which you refer is the common fall aster. Honey from this source is causing serious trouble all over the North and East, and is, no doubt, the cause of your bees dying. They probably do not show signs of dysentery with you because they get frequent days when they can fly out, and yet not warm enough to void themselves successfully and get back into the hive. This would cause the dwindling to which you refer.

If you wish simply to save the combs in which the honey is candied, and do not care particularly for the honey, wait until warm weather; uncap them, and hang them in the middle of the brood-nest of your colony. The bees will quickly clean them out. They will, of course, at the same time consume a large part of the honey, but will throw the harder portions out. In case you wish to use them for stimulative feeding in the spring, uncap them and

hang them in the center of the brood-nest as in the above-mentioned plan, and return to the hive every two or three days and remove these combs and dip them in warm water. This will help dissolve and dilute the candied honey, and the bees will remove it and use it. Before placing the combs in the hive they should be marked so that you can readily remove them without disturbing the others.—ED.]

More Hints on Binding

On page 37 D. W. Howell gives a very good suggestion for binding a file of GLEANINGS with nails. But he tells us to make the bottom edge even. It will be better to make the top edge even, so that it will gather less dust when it stands on the shelf. The bottom edge does not need to be any evenner than it can be made by trimming the extra-long ones with shears. It will be still better security against dust if you have the top edge cut smooth after the volume is fastened together; and if at the same time you can cut the front edge smooth, turning the leaves to find a desired page will be much easier. To cut a block of paper smooth, clamp it as tight as possible in any sort of vise or clamp, and then cut close—not a sixteenth of an inch away, but close—to the line along which the vise holds it. Any thing that will cut will do; but it is much better that the knife be either sharp or driven by a strong power; and even with strong power it is better to have it sharp. That is why the printer, especially if he knows there are nails in the thing, would rather cut the edges for you himself than trust you to handle his cutting-machine.

If you don't have stiff sides, the outside pages will soon get ragged with pushing into place on the shelf. So put on pasteboard sides, holding them on by a cloth back glued to them, or by a cloth that goes over back and sides both. The nails can go through the cloth, or the cloth can be glued on over the nails and hide them; but if you put it over the nails I advise you to see that the very best glue holds it to the pieces of leather that Mr. Howell told you to put under the nail-heads.

Ballard Vale, Mass.

STEVEN T. BYINGTON.

Cotton Cushions Effective Protection

We have noticed H. G. Quirin's inquiry on the use of cushions for the protection of the bees, and in reply would state we have been using these for the past eight years, and find they work wonders in protecting the bees both in winter and summer. We use the telescope cover with one of these cushions over the super cover the entire year, and have never had a colony freeze in the winter nor a comb melt down in the summer, although we have had weather below zero.

In this way our bees are protected from any sudden changes in the weather, and we find they build up earlier in the spring and later in the fall when they have this protection.

Louisville, Ky.

J. P. MARTINE & SON.

Finds Drones Out Early

While I was in my beeyard on the 11th of February, a fine day, I found to my surprise a number of drones flying out of one of my hives. Evidently it was their first flight. On the 13th I again found drones coming out of that one hive, but none from any of the rest of them. These are the only drones I have seen in this locality. If I had a queen to be mated within the next four or five days I am sure I should have no difficulty.

Mathews, Ala.

M. S. WORDAN.

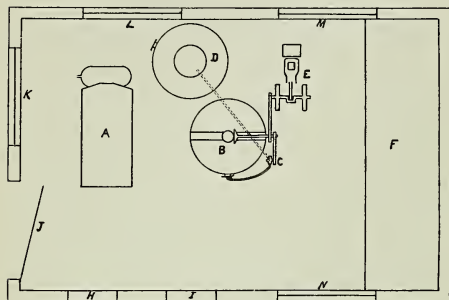
Wants Plan for Extracting-house

Please give me a good plan for an extracting-house.

Esccondido, Cal.

SAM SAKUTT.

[There are many possible arrangements of the fixtures in an extracting-house, and it is hardly possible to recommend any one arrangement that would suit every one. The drawing, however, shows the floor plan of an extracting-room, which is very convenient. This is for a building 12 x 18 feet. A smaller room would answer the purpose almost as well, but the larger building costs so little more that it is economy in the end.]



FLOOR PLAN OF 12 X 18-FT. EXTRACTING-ROOM.

(A) Capping-melter; (B) honey-extractor; (C) honey-pump; (D) tank; (E) engine; (F) bench; (H, I) small opening with wooden doors for passing supers in and out; (J) door; (K, L, M, N) windows.

There should be two shelves at least three feet wide running the entire length of the building, and located on each side above the windows, perhaps seven feet high. These shelves permit the storing away of such articles as are not in use, in order to leave the floor clear for the work at hand.

Remember that there should be no screens at the door. Glass may be used if necessary for light, but the screen should be at the windows only so that there will be no bees bothering about the door during extracting time.—ED.]

Has Lost No Colonies on Account of Aster Honey

The bees here have been flying a little nearly every day for a week or more. I was afraid they were not going to winter well on the aster honey, as some of them were showing signs of uneasiness and dysentery. I haven't lost any on account of the stores. I lost one from queenlessness. Not over half a dozen colonies in my 80 could be called weak.

I have four nuclei that I wintered in the cellar on aster honey. They are in fine condition. I have them outside now.

The bees are carrying in something that looks like brown pollen. They will not touch flour.

BYRON S. HASTINGS.

Brookville, Ind., Feb. 23.

Sweet Clover in Kentucky

It is one of the prettiest sights the eye ever beheld to see from five to ten acres of sweet clover in full bloom, bees coming and going. Our county has always had more or less of sweet clover. It soon restores old waste land, so that in a few years it will raise splendid corn, wheat, and tobacco.

If the writer of the editorial, page 48, Jan. 15, will call on me in June I will show him a sight hard to beat. I will take him through Pendleton and

Robertson counties. The statement that they grow nothing else is, I think, a little strong.

We have white clover, smartweed, and Spanish needle. I do think there is too much tobacco grown in the three counties. Let him come about the middle of August and he can buy sweet-clover seed by the carload.

Brookville, Ky.

L. T. RICE.

Success with Soft Candy

The temperature reached sixty here to-day, Feb. 13, and what a fine flight the bees had! They have come through thus far remarkably well considering the cold weather. A few show symptoms of dysentery. For this reason I made up fifty pounds of soft candy by Dr. Gates' formula, and gave to about that many colonies a pound each. I tried it last spring on ten colonies, and found it remarkably good to cure dysentery and bring them through spring weather in good order. In fact, I believe it saved those I tried it on last spring. For that reason I gave it to more this time, believing it would help them all.

In relation to Straw, p. 95, Jan. 15, I know Dr. Miller's great crops of honey, and his success as a keeper of bees. I desire to sit at his feet and learn; and while I know he has eight-frame hives in his yard I never think of him as an eight-frame-hive user from the testimony I have gathered from himself and those who have visited his apiary. Rather he uses sixteen frames in the two hive-bodies. Many times I have read his reply to the beginner's question, "What size of hive shall I adopt?" He always advises a size larger than an eight-frame, and rather apologizes for using it, himself.

Urbana, O.

O. J. JONES.

Home-made Bee-gloves

Without suitable bee-gloves, and not able to get them of the right size, I sewed long wrists with rubber in the top to a pair of common six-cent canvas gloves, then melted some beeswax and soaked them in it. The bees rarely try to sting the wax-coated surface, and it is practically sting-proof, as at the most they can only prick through, not stinging to any depth.

The best thing I can do for a bee-sting is to squeeze it until the blood starts. This seems to get the poison out of it. A solution of chinisol removes the soreness for me the best of any thing I have found. If not attended to, stings poison me badly, and this grows worse the oftener I am stung.

Glover, Vt.

JEAN WHITE.

Is Honey Capped Air-tight?

The value of bottled honey as a food might be greatly affected by the knowledge as to whether honey-cappings are absolutely air-tight. Can you give any method by which definite determining tests may have been made?

Ft. Smith, Ark.

L. E. KERR.

[The principal proof that the cappings over honey are not absolutely air-tight lies in the fact that, when comb honey is stored in a damp cool place, the honey absorbs moisture from the air, becomes thin and watery, and oozes through these cappings. If the cappings were air-tight this could not happen.—ED.]

Ohio Bees Gathering Pollen in February

February 21 our bees were gathering pollen and nectar. The temperature was 52 in the shade. This is the first time in thirty years when bees gathered pollen this early. It is remarkable, considering this cold winter. The bees so far have wintered well.

Lima, Ohio.

MRS. J. A. MOONEY.

A. I. Root

OUR HOMES

Editor

A. I. ROOT A BEEKEEPER.

It sounds a little funny (does it not?) to be told, after I have been fifty years or more before the world as authority on bees, that I am really and truly a *beekeeper*. Well, just now I have several "funny" things to mention that are happening down here in "sunny Florida." Yes, and that very expression, "sunny Florida," that you see just now in the advertisements of Florida lands, is about the funniest of them all. Tourists who come down here this winter for the first time ask with a long and solemn face, "Where is your sunny Florida we were led to expect?" etc. Well, this winter is an exception. Things are "sorter turned round." We have not only been having big rains and floods in the winter, but we have (*even here*) "rainy days," sometimes *two* in succession, with "nary a glimpse" of sunshine. "Overhead irrigation?" Bless your heart, *we* have it, and it doesn't cost "nobody" a cent.

Well, my "apiary" that I proudly show to visitors is a little funny, also, for it consists at present of a single three-story hive, and robbers have been so bad *right here* I have hardly dared open it for two months past. Pollen has been coming in, however, more or less, all winter when it hasn't rained. I have sat and watched the bees bring in pollen (heavy loads) with almost as much keen enjoyment as when I used to hold "Blue Eyes" close to the entrance and explain to *her* the "mysteries" of the beehive.* Dear me! Blue Eyes is now a matronly mother of two boys, one of them taller than his mother; and the other just now as intent on studying the heavenly bodies as his mother and I were with the bees, almost fifty years ago. Orange bloom is just coming on now, and the robber bees are, I hope, earning an "honest livelihood."

Here in Bradentown we have recently started a *bee convention*, and there are several funny things about this "convention." One is, they hold a session (or did) once a week. Another is, there are often less than a dozen in attendance; and a *third* funny thing is that, in this funny little *weekly* convention we have one of the biggest beekeepers in the world. He reports 3000 colonies, and 53 out-apiaries in Georgia and Florida. See Feb. 1st issue for particulars. We have also one beekeeper in this county who owns and manages about 700 colonies

in something like a dozen apiaries. One of the subjects discussed was how to increase as rapidly as possible down here in Florida, where one has only a few hives to start with. The letter below opens up the subject:

Dear Mr. Root:—In accordance with your suggestion I bought a nucleus last summer. They are fine fellows, and are doing well. This season I want to increase.

Can't you give us some articles in the *Florida Grower* or in *GLEANINGS* especially suited to Florida conditions? I have an idea there are many in Florida who need some help in addition to the A B C and other books.

Clearwater, Fla., Feb. 3.

S. H. EAST.

By way of an answer I will mention how I got my one colony. My neighbor Ault sold me a colony of nice gentle Italians; but before taking them away he removed a frame or two of brood and bees which he placed in another hive on the old stand, thus giving them all the returning bees. This made a very good nucleus, and they soon had a young queen that was successfully mated, even in December. Of course, one would be considerably ahead if he had an extra queen to introduce; but while no honey is coming, the loss of time is no very great thing.

Now, *here* is a "funny thing" that it may be profitable to consider. While Mr. Ault declares he can raise queens and *have them fertilized* all winter long, down here, no one has ever yet, so far as I can learn, offered to furnish young queens all winter long. All through March, April, and May there is always a great call for young queens, and no one has as yet gone into the business of supplying them. If I am mistaken, if he will stand up and speak I will gladly give him a free mention.

The last and perhaps the "*funniest* thing" of all about our "convention" is that a bountiful supply of very nice nuts and candy is placed on the table just before adjournment, and everybody "participates." The convention goes about from house to house, or from apiary to apiary. Our host explained the nuts and candy are to induce busy beekeepers to come. Isn't this really a "funny world," any way, and does it not behoove us all to be neighborly, and "have fun," instead of quarreling and *killing* each other?

EDISON AND HIS RECENT FIRE, ETC.

In view of what I said about Edison in the Dec. 1st *Homes*, our readers may be interested in the following, which I clip

* She was the baby that used to sing out, "Out doors, I do! out doors, I do!" almost as soon as her papa came in sight.

from the Bradentown *Evening Journal*. Perhaps I might add that both Edison and his good wife came from Ohio near our Medina home. He is eight years younger than I, so I have been able to keep pretty close track of him from childhood up.

Speaking of the incidents of the fire, Mrs. Edison said:

"Mr. Edison came back from the fire shortly after midnight. Then he went to his room and busied himself all night with plans for new buildings. At 5 o'clock he decided to go to bed, but in a few minutes was up again.

"He wanted to rush down to the factory and get busy with his men. I begged him not to go down. Then I telephoned to the office and told them to replace to their natural positions all the books and other office belongings which had been removed. I wanted every thing in such condition that it would appear natural when Mr. Edison went to his office. All the time he was insistent upon going down, but I calmed him down and kept him here.

"At 10 o'clock they telephoned from the office that every thing was about straightened out, and for him to come down. But at that time he was all tied up with reports and plans, so I did not tell him. At 1 o'clock he went to sleep. He is up in his room now, and he will not be disturbed for any thing in the world."

It is true that Edison's losses are small in view of his wealth and prestige and power—a mere trifle in comparison with the losses which come to the humble ditch-digger and his family when their humble home goes up in flames and smoke.

But Thomas A. Edison once was a poor working boy. There is inspiration in his life, and attainment for every boy and young man who has a place to achieve in the world.

There should be an inspiration in his life for those who willingly fall into the "has been" class at forty.

Thomas A. Edison is an old man, according to the calendar as the world counts time.

He is not a quitter.

Every little while I say to Mrs. Root, "Sue, here is the kindest and most encouraging word for the Home papers yet;" but the letter below, I verily believe, "caps the climax."

Dear Uncle Amos:—Of course you didn't open this yourself; but I hope the busy helper who *did* will stop reading this right here and send it to you in Florida. I have loved you since I used (away back in 1884) to sit on my father's lap and read GLEANINGS with him. He has long since gone to his reward. The old home is occupied by strangers, and has no orderly beeyard. I was the youngest child of Stephen Luther, whose magazine at that time was directed to Fairview, Erie Co., Pa. Later it was Girard, same county. He always felt sure of goods from "Root's," and enjoyed the whole of GLEANINGS, but especially *Our Homes*. This morning I was looking through an old book of his and found a copy of the description of his device for lowering swarms from treetops by means of a basket and pulley, etc., which you at one time published. Can you imagine the tug at my heart, and how blessed memories came flooding back when I found in the February copy of *Ladies' Home Journal* the advertisement of A. I. Root, etc.?

Your children were near my own age. And just as they were growing up, helping you and getting educated, I was growing up, learning the bee business with father, getting some education, and learning to love to try to serve the heavenly Father. I may be imposing on your good nature by writing all this, but I am choking back the tears which just the line, "*The Home of the Honeybee*" in that adver-

tisement brought. I really feel that you are an old and very dear friend. Father and mother are gone, but I hope you are well and as happy as a true child of God has a right to be. How many years you have been standing on the promises, and seeing them fulfilled! I am very glad I ever knew you through the "blessed bees." Dr. Miller and Emma, Hutchinson, Doolittle, and many others who wrote in GLEANINGS were familiar to us, but I never got so close to any of them as to you. How often mother's voice broke as she prayed our Father to prosper you for the sake of this work which you were able and eager to do. Father used to wish that you would "wheel" to our place, but you were always so busy that he never dared write an invitation to do so. It is so long since I donned a bee-veil or saw a copy of GLEANINGS that I do not know what the world of beekeepers are doing now.

If you are the same in disposition as when I learned to call you Uncle Amos you may be interested in hearing that one of your early readers is here in the oil region, and the mother of five sturdy youngsters.

I know you would have enjoyed last New Year's day if you could have been in the midst of fourteen girls from my Sunday-school class who spent the day with me.

I wonder if you are as enthusiastic a driver of automobiles now as you were a rider of bicycles years ago. Perhaps you might be tempted to visit Bradford next summer, and drink some of the cold water which comes up 200 feet when oil-wells are driven in this locality. I should be as glad to welcome you to Mapleside (as we call our home) as though you were really and truly my Uncle Amos, as I learned to think of you years ago.

The last copy of your magazine father ever sent me told of the Buttercups you were experimenting with.

MRS. SARA GERTRUDE GREENWOOD.

Bradford, Pa.

A KIND WORD AND SOMETHING MORE FROM AWAY OFF IN MONTANA.

Mr. A. I. Root:—Just a word of kindly appreciation for you for the Home papers. I have never missed reading them for a number of years, and often they are all that I find time to read. They have been a great help to me; and that article, "*The Defeat of Injustice*," the first one, went into my scrapbook and into my life. I have 50 copies of the booklet, and will use them for free distribution soon in the Sunday-school.

Two years ago while on the Pacific coast I came across the enclosed Lord's prayer, and made a few purchases at the time at 50 cts. (on satin) in the new *Times* building, and now I have them for free distribution on a limited scale. The *Times* editions were repeatedly exhausted, and even at 50 cts. I had to place orders ahead for even a few copies. I never tire of reading this composition, and trust that it will be of much pleasure to you.

Corvallis, Mont., Nov. 10.

E. H. SHELTON.

THE LORD'S PRAYER, WITH A "READING BETWEEN THE LINES."

The following beautiful composition was captured during the war at Charleston, S. C. It was printed on heavy satin, July 4, 1823. It was picked up by A. P. Green, of Auburn, Ind., at Corinth, Miss., the morning the rebels evacuated it, May 30, 1862.

Thou to the mercy-seat our souls dost gather
To do our duty unto thee.....*Our Father,*
To whom all praise, all honor should be given;
For thou art the great God....*Who art in Heaven.*
Thou by thy wisdom rul'st the world's whole frame;
Forever, therefore.....*Hallowed be thy Name;*
Let nevermore delay divide us from
Thy glorious grace, but let.....*Thy Kingdom come,*
Let thy commands opposed be by none,
But thy good pleasure and.....*thy Will be done;*
And let our promptness to obey be even
The very same.....*In Earth as 'tis in Heaven.*
Then for our souls, O Lord, we also pray,
Thou wouldst be pleased to.....*Give us this day*
The food of life, wherewith our souls are fed.
Sufficient raiment and.....*Our daily Bread.*
With every needful thing do thou relieve us,
And, of thy mercy, pity.....*And forgive us*
All our misdeeds for Him whom thou didst please
To make an offering for.....*Our Trespases,*

And for as much, O Lord, as we believe
That thou wilt pardon us. *As we forgive,*
Let that love teach, wherewith thou dost acquaint us,
To pardon all. *Those who trespass against us;*
And though, sometimes, thou find'st we have forgot
This love for thee, yet help. *And lead us not*
Through soul or body's want to desperation,
Nor let earth's gain drive us. *Into temptation.*
Let not the soul of any true believer
Fail in the time of trial. *But deliver,*

Yea, save them from the malice of the devil,
And both in life and death keep. *Us from Evil;*
Thus pray we, Lord, for that of thee, from whom
This may be had. *For thine is the Kingdom,*
This world is of thy work, its wondrous story
To thee belongs. *The Power and the Glory,*
And all thy wondrous works have ended never,
But will remain forever and. *Forever:*
Thus we poor creatures would confess again,
And thus would say eternally. *Amen.*

HIGH-PRESSURE GARDENING

THE DASHEEN IN CUBA, ETC., FROM ANOTHER
"LONG-TIME FRIEND."

Friend Root:—I will now explain what I meant when I said that the dasheen craze got me for about \$40. In the first place I will state that my folks are great on Irish potatoes, and say they cannot live without them; and as they are sometimes hard to get, and poor at that here, I have tried to replace them with any thing and every thing I ever heard of that would grow here. Every thing has failed so far; so when you got to praising the dasheen ("sky high") I thought they would do. To try them I sent \$2 to the Brooksville Development Co., and told them to send me what that money would cover, postage paid by registered mail, as I wanted to try them. In due time I received a letter from them saying that they had sent me a bushel by express for the \$2.00. This was the beginning of June. My son was up north at the time, and I was sick, so I could not go to the station myself; so after allowing a reasonable time I sent a man after them. For some reason they were nearly three weeks on the way, and that man had to make seven trips before he finally got them. He charged \$2.00 a trip. That made \$16; the express charges were about \$4.00. This brought them up to \$20, when I finally received them. And what did I get? Just 18 lbs. of dried-up little tubers the size of marbles. There were about 460 tubers in the 18 lbs., so you can judge for yourself what size they were.

I could not believe that any experiment station would send out such stuff. I thought that perhaps some one had changed them, so I wrote to the Brooksville Development Co., sending them a sample, and asked them if that was what they had sent, and also asked them to write me as to how many pounds they had delivered to the express company, etc. They merely made no reply at all.

Well, I threw away the larger part of them, and planted the best about the last of June, not expecting they would do any thing; but in November I dug quite a lot of nice tubers about the size of a hen's eggs. The next season I planted these; or, rather, I planted them the last of January, and in July and August I had a splendid stand of them. They beat the picture you had in GLEANINGS of your own. Then in September we had a three-weeks' drouth here, and they all died down to the ground. Along in October they sprouted up again, and in November I dug them, and got about 40 bushels. Now comes the "rub." Nothing would eat them. The family said "once a year" was enough if there was nothing else. Neither cat, dog, rats, chickens, nor pigs would eat them, either raw or boiled. I finally disguised them by boiling and mixing them with cornmeal, and fed them to the pigs in that manner, and so got rid of them.

I want you to understand that I am not blaming you for any failures I may make in following you. Some things have turned out good with me here, and some have failed. Those chufas you wrote about—

heavens! how they bore here! and they were good to eat—a fine nut; but I could eat them faster than I could wash off this Cuba soil from them.

Mulberries have done the best with me. I am getting a fine lot, and the northy berry is the only berry that can hold its own with the grass and weeds in Cuba.

I wanted to try helianti; but you see what Lovett said about it. If it would grow in bushes and be easy to dig I would still try it.

Well, old friend, things have not gone very well with me these last few years ever since the cyclone, and I suppose I am somewhat sour. Cuba is going backward. We don't get the honey crops we used to; and this year we are not getting any thing for our honey on account of the war. When we read of the war there, floods here, earthquakes in Italy, drouth in Cuba in summer, heavy rains in winter, all kinds of crops ruined, it looks as if even God were at war with humanity. The way things go, it makes a fellow feel as though he wanted to run away from himself. I am hoping for better times, however.

Paradero Mangas, Cuba. C. F. HOCHSTEIN.

I believe the above is the first unfavorable report we have had from the dasheen. Let me explain a little. The Development Co. mentioned are in no way connected with the Government Station at Brooksville. The small dasheens are the ones usually sold for seed; and had our good friend H. planted the dried-up ones I think every tuber would have made a plant in time. After filling all orders last May I planted the poorest dried-up ones, and nearly all grew. In regard to their edible qualities, Cuba soil, or the kind of soil used, must be at fault. We are now using them at every meal, and our neighbors agree with us. We boil the skins, or peeling, after scraping out the inside (of the baked dasheen) for the ducks and chickens, and they "go for them" more than for any other feed. Helianti is more trouble to dig and wash than the chufa. Friend H., could not that bright young lady who managed the turkeys so skillfully make them take to dasheens?

A GREEN-CORN "SCRATCHER."

Mr. Root:—I notice that you inquire if any one knows where you can get a corn-scratcher. I do not know about that instrument, but I have for the past 45 years been in the habit of using a sharp peeling-knife, such as Mrs. Root would use for peel-

ing vegetables, and score down the center of each row of corn, and the tender corn will slip out of that tough hull, which, as you say, is very indigestible. In fact, it used to give me a very uncomfortable feeling like a chunk in the stomach until I adopted the method I enclose. You will find the cob simply covered with the hulls when the corn is of proper age for eating.

I very much enjoy reading all articles in the Home Department, and trust you and Mrs. R. may live many years yet in peace.

Mrs. MARY O. HIGGINS.

Southern Pines, N. C., Jan. 18.

A GREEN-CORN SCORER.

According to GLEANINGS of December 1 you wish to know where to get those green-corn scorers. They can be had at John Wanamaker's, in Philadelphia. They cost 15 cts. They certainly are a very fine arrangement to score green corn. If the scorer is drawn lengthwise over the ear of corn before eating, when you go to eating the pressure of one's teeth will cause the kernels to come out nicely and leave the hull on the cob, providing the corn is not too old and hard. It is fine. I do not care to eat corn without the scorer.

Doylestown, Pa., Dec. 18.

A. C. GROSS.

HEALTH NOTES

SOME MORE GOOD HARD "COMMON SENSE" FROM DR. WILEY.

As you read it, imagine where you hear my "amens!"

TWO KINDS OF CODDLING.

Dr. Harvey W. Wiley, pure-food advocate, has a notion or two outside the field of drug poisoning well worth recording. "To cure a cold," he says, "take a bottle of cough medicine, set it on a table in the patient's room, open all the windows, and throw the bottle through one of them."

"Three-quarters of the children who die," he says further, "are killed by love. Love is the greatest assassin of childhood." Coddling he deprecates as a practice hurtful to the development of boys and girls into healthy, useful manhood and womanhood.

The doctor, doubtless, is speaking primarily of foods and the use of drugs and medicines. But the subject goes much further. Coddling does not necessarily involve the use of either.

There is needed on every hand a better appreciation of the value of hard knocks. A child whose pathway is smoothed through early life has missed a valuable source of training; he has been deprived of the privilege of a discipline which, in all probability, his parents had in full measure, though they may have forgotten it.

It is mistaken kindness to play Montessori to every childish complaint. Call it love, if you will; it is not real love, but an erroneous application of gentleness. In all directions are evidences of the need of a sterner discipline—not an unkind, Spartan-like insistence on the forms of obedience, but a paternal and maternal demand that regulations established for the control of us all shall not be broken down by default of effort to see them maintained.

Coddling is at the bottom of school "strikes." A pupil who knows that the discipline of his teachers will be upheld at home is not likely to lead a "strike" nor follow one far. The boy who makes it unpleasant for his teacher seldom is called to account for making it unpleasant for his mother. In the training of childhood to meet the obligations of a life which knows no Montessori systems, the home and the school must stand together or both will fall.

There are two kinds of coddling. To one impure drugs have no relation. Dr. Wiley is right whether he meant one or both of them.—*Cleveland Plain Dealer*.

INTERNAL BATHING, ETC.

Mr. A. I. Root:—I have become somewhat interested in the claims of Dr. Chas. A. Tyrrrell, of New York, in regard to internal bathing. I recall that, several years ago, when I read GLEANINGS regularly, you were an enthusiastic advocate of this system of treatment. Do you find it a good system to tie to, or did it develop bad features after longer trial? Perhaps you have answered these questions in

GLEANINGS; but not having kept bees in recent years, and having many other interests, I have not followed your writings as I once did.

Philadelphia, Pa., Jan. 2.

C. B. THWING.

In my absence Ernest replied as below:

Mr. C. B. Thwing:—My father is in Florida; but I can speak for him on the question you ask—namely, the matter of internal bathing. He does not use it now as much as he formerly did—only in case of an emergency. Both he and myself have found that it is very much better to eat apples or oranges or grapefruit for the evening meal than to depend on the bath to free the colon. I used to depend on it entirely; but my health was not nearly as good as it is now when I depend on nature's way, the eating of acid fruits. Sometimes, when I do not get sufficient flushing of the bowels I eat half a grapefruit or an orange just before going to bed. This will usually produce the desired result without any bad effects—effects such as one gets from the use of a cathartic. During late years A. I. Root has been a great advocate of eating only fruit for the evening meal.

Medina, O., Jan. 11.

E. R. ROOT.

I entirely agree with the above, and would add that, years ago, when I tried assisting nature daily in that way, I found my food was not giving me the strength and endurance it should, for the bowels were emptied before nature had finished her work. I have reasons to believe those who at the present time are advertising apparatus for this purpose are not in accord with the advice of our best doctors.

UP-TO-DATE SURGERY; IS IT A BLESSING TO HUMANITY?

As there has been some discussion in regard to the above, in our pages, I have thought best to give the clipping below from such excellent authority as our good and able friend "Ridgway," of the *Sunday School Times*:

YOUR DOCTOR.—He saved others; himself he can not save (v. 31). Which was exactly true, even though hate said it. This is the law of life for all good men. As I write a splendid physician of great fame and large practice has just died in Philadelphia. He has saved thousands by his skill, but he wore himself out in the doing of it. He could not save himself. He said to me one day, "I performed nineteen operations last week, most of them great ones. I shall get paid for but two." They

found him dead last week upon his office floor just where he dropped. He died there all alone. I said to him one day, "Doctor, don't you ever get callous and hardened to surgical operations by doing so much of it day after day?" Said he, "Ridgway, when you put your loved one, with all the agony of your anxiety, into my hands for life or death, I have in trust the most precious thing on earth. How could I be a man and not feel—how could I get callous and hardened?" And after a moment's silence he grabbed my arm, and said, "Ridgway, week after week with trusts like that I sweat blood." And last week it killed him. And thus good doctors are continually being killed. Take off your hat in reverence to your doctor. And fall on your knees before your Savior (Rev. 12:11).

Please note from the above that surgeons are not, at least not all of them, "hardened" by their occupation; and their fee to those able to pay may not be so very unreasonable after all.

STILL BRIGHT AND WELL AT THE AGE OF 106.

We clip the following from the *Cleveland Plain Dealer* of Oct. 27:

AKRON, O., Oct. 26.—"Be temperate in all things, but work," is the recipe for longevity given by Ohio's oldest citizen, Mr. George W. Austin, Kent, O., who celebrates his 106th birthday today. Two hundred relatives and friends will assemble at the home of Mrs. W. S. Kent to help him celebrate the event.

Mr. Austin was born in Hartford, Ct., Oct. 26, 1808. When 18 months old he accompanied his parents on an overland trip by ox team to Little Rock, Ark., then a wilderness. In 1813 Mr. Austin returned to Kent and has continued to live there ever since.

In 1830 he was appointed a mail-carrier and made regular trips, on foot, between Ravenna and Canton. Mr. Austin has outlived his wife, two children, and three grandchildren. His two brothers died a number of years ago.

This old man is remarkable in many ways. He has never found it necessary to have the services of a physician. He never drank a drop of liquor nor smoked tobacco in any form. It is to total abstinence and hard work that he attributes his long life.

He takes a daily walk of one-half mile from his home to his favorite barber-shop and reads the daily papers. At present he is interested in the suffragist movement, and expresses the hope that he will live to see the State vote dry.

Note, friends, that this man, so well preserved at this great age, never drank a drop of liquor nor used tobacco. Total abstinence and hard work is the way he expresses it; and I am more and more convinced every day of my life that people die because they sit down and give up. They leave the farm and move to town so as to "take things easy," and just as soon as they begin to take things easy, stop exercising, and keep right on eating three meals a day, down they go. As for me, I hope and expect to "die in the harness," God permitting.

CURED BY A BEESTING, ETC.

I once took a bad cold, and it settled in my right eye. There were two little white pimple-like lumps that came on the eyeball. They were very painful, and felt just as if I had my eye full of cinders. I

really thought I had, but my wife and others said they could not see any thing except the little white lumps. The pain was simply about all I could endure, and I am not much of a hand to complain either. I had just about made up my mind to go to town and have a doctor, when I happened to notice a nucleus near the house, and decided to look and see if the young queen had begun laying. Possibly I was not as careful as I should have been; but at any rate a bee stung me in the right temple, and in five minutes my eye was so much better that I hardly noticed it any more, and by evening it was entirely well, and hasn't given me any trouble since.

Uniontown, Ala., Aug. 12. L. A. HARGREAVES.

My good friend, your letter reminds me of something that happened a few weeks ago. When I awoke in the morning one of my eyes felt bad; but the more I washed it the worse it became. Finally the pain became, as you describe it, so great that I sent for a doctor. I told him I had gotten something in my eye. A careful search, however, revealed nothing or next to nothing; and after removing every thing he could discover he applied a drop or two of a solution of boric acid, and the pain and irritation disappeared as if by magic. In fact, I uttered an exclamation of joy and relief to have it disappear so suddenly; and others have informed me that this is the remedy in common use, and affords relief from almost any kind of irritation or similar troubles of the eye. We now keep some of the solution in the house, but my eye has never troubled me since in the same way. Is it not possible that the beesting produced a flow of tears and lubricated the irritating eruption?

KEEPING THE HANDS CLEAN.

When I was in the watch-repairing business years ago it was absolutely necessary for me to keep my hands dry and clean. In handling the delicate machinery of a watch, soiled or perspiring hands could never be tolerated an instant. On this account I always had a wash-basin, with soap and towel, near my work. And this fashion has followed me more or less all my life. Down in Florida I have soap, basin, and towel outdoors near the garden. It saves my climbing the steps to get into the house, saves me from using the towels indoors when I am in a hurry, etc. As Mrs. Root does all the washing, I try to avoid using the regular towel when I am in too much of a hurry to wash my hands *thoroughly*. The white cotton cloth used for sacks for middlings makes a very good towel to be used on such occasions. It is also handy to have around automobiles when you want to wipe your fingers. Down in Florida there is no market for paper-rags, as paper-mills are so remote; and I believe there is no market for grain-sacks or sacks of any kind. They are just

dumped around and allowed to rot after the grain is emptied out. If they were saved up till we get a carload it would pay to ship them; but nobody, at least around Bradentown, has as yet undertaken the job.

Well, now, to get back to this matter of keeping the hands clean. Huber has just made an invention. Those of you who have worked with automobiles know what a task it is to get the black grease off the hands when you once get them badly soiled. Why, it often takes more time to clean up than to do the work. To help matters, I have kept a little dish of sand close by the wash-basin. The sand helps very much to get off the sticky grease. Well, Huber's invention is this: *Before* you go to work at the automobile, or any other greasy machinery, coat your hands with soap and let it dry on. This will not hinder you at all in your work; and when you come to wash, the grease from the dirty ironwork comes

off in an instant because the soap prevents it from getting down into the pores of the skin. Mrs. Root adds a supplement to Huber's invention. She said she read in some woman's magazine that you should "claw" into a bar of yellow soap so as to fill the finger-nails before you attempt dirty work. When you are through, a nail-brush will wash off the soap very readily without a great lot of scouring.

Now, clean hands are not only an indication of respectability, but it lets people know you are careful about making your wife trouble by going into the house and handling things with dirty fingers. I might say something about dirty feet as well, but I have not time just now. Let us all strive, good friends, to have not only clean hands and clean feet, but a clean heart, void of offense toward God and our fellow-man, and the good wife, last of all, but by no manner of means least.

TEMPERANCE

"PHILADELPHIA DRY IN 1916."

Our good friend B. B. Jones (Lake Roland, Md.), keeps us posted about Billy Sunday by sending us clippings from the daily *Baltimore Sun*. Here is one of them:

PHILADELPHIA, Jan. 31.—Making a solemn vow that, when they got the chance to vote Philadelphia "dry," they would do it, 40,000 Philadelphia voters cheered Billy Sunday to-day when he preached his famous "booze" sermon.

They leaped to their feet as they registered that vow, and then swarmed down the sawdust aisles, struggling to get to the evangelist. Failing that, they climbed on the pine benches, and, hurling their hats in the air, yelled the prediction: "Philadelphia dry in 1916."

That was the climax of the most sensational sermon Sunday has preached here. He preached it twice, and 1266 persons "hit the trail" at the two services.

The evangelist scored the farmer who sold his grain to the distillery; scored the man on his way "to church and heaven" who was really going "straight to hell" because he voted for rum; scored those responsible, through liquor, for the asylums, almshouses, penitentiaries, electric chairs, and the 865,000 "whisky-orphaned" children in America.

The words of Lincoln, McKinley, and Roosevelt against liquor were quoted by the evangelist, and deafening cheers rang in the low-roofed building when Sunday grabbed an American flag, crying: "Every plot to overthrow the United States and trample under foot this glorious flag wriggled and crawled out of the pit of hell. That hell was a liquor-hell."

Sunday told of the farmer getting 50 cents for a bushel of corn from which the brewer made 36 pints. With three of those pints Sunday declared eight lives were wrecked, and three persons were sent to the gallows. He stated what the Federal pure-food laws required beer to be made of, and then gave his version of what it really was made of, and he hit at the administration that "kicked out old Doc Wiley, the best friend the American people ever had."

I am beginning to have faith that Mr. Sunday will (God sustaining and sparing him) not only make the *whole United States dry*, but that he alone will ultimately end the war in Europe through Christ Jesus, whose representative and "ambassador" he is—"ambassador to be, from realms beyond the sea."

QUESTIONS IN JUDGMENT.

John O. Keeler was hanged the other day at Clearfield, Ind., because in a drunken frenzy he murdered Joseph Roessner, the Clearfield brewer.

What Keeler has told his God is not known; but this is what he wrote to Rev. Dr. Reeve a few days before he was strangled to death by the law:

I can say with a clear mind that I was never sober from the time I went to work at the Clearfield brewery. I was full of booze all the time, counting Sunday with it, because I had a keg at home on Sunday, and I did not have to get drunk to do what I did. I am here for the murder of Joseph Roessner, but I don't know if I killed him. I can't say. If I could I should be glad to tell the public so, because he made the booze and he gave it to me free of charge, that made me a drunkard and a murderer. It was Mr. Roessner's own product that murdered him and made me a murderer. It was his beer that put my family in distress and lots of other families besides mine.

I began my downward career at a saloon bar and wound up at the Clearfield brewery. I will appear at another bar, the judgment bar of God, and there your Honorable Judge Smith and some of his lawyers, and Joseph Roessner, and a good many more, will appear with me and will be rightly judged.—*Westerville New Republic*.

"HOLDING THE FORT."

Mr. Root:—You will be glad to know that Van Wert has voted dry by 300 majority. We hope that our town will follow the lead of the county seat.

Convoy, O., Jan. 9.

J. F. ALEXANDER.